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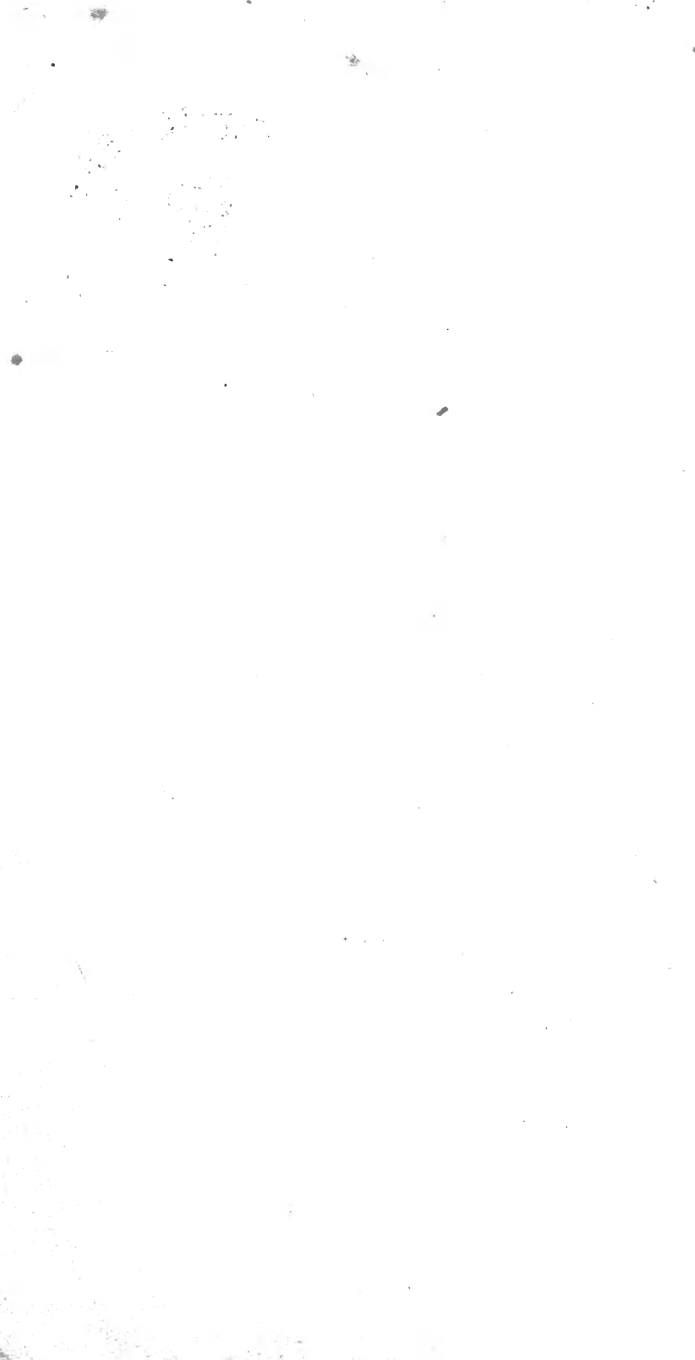
WELLINGTON.

NEW ZEALAND.

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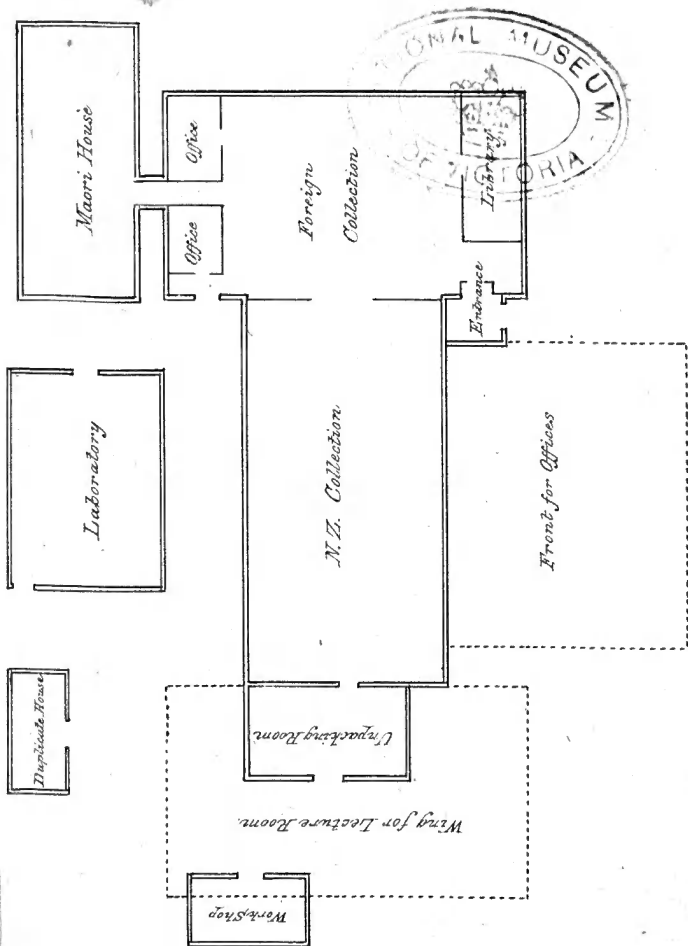


MUSEUM OF VICTORIA



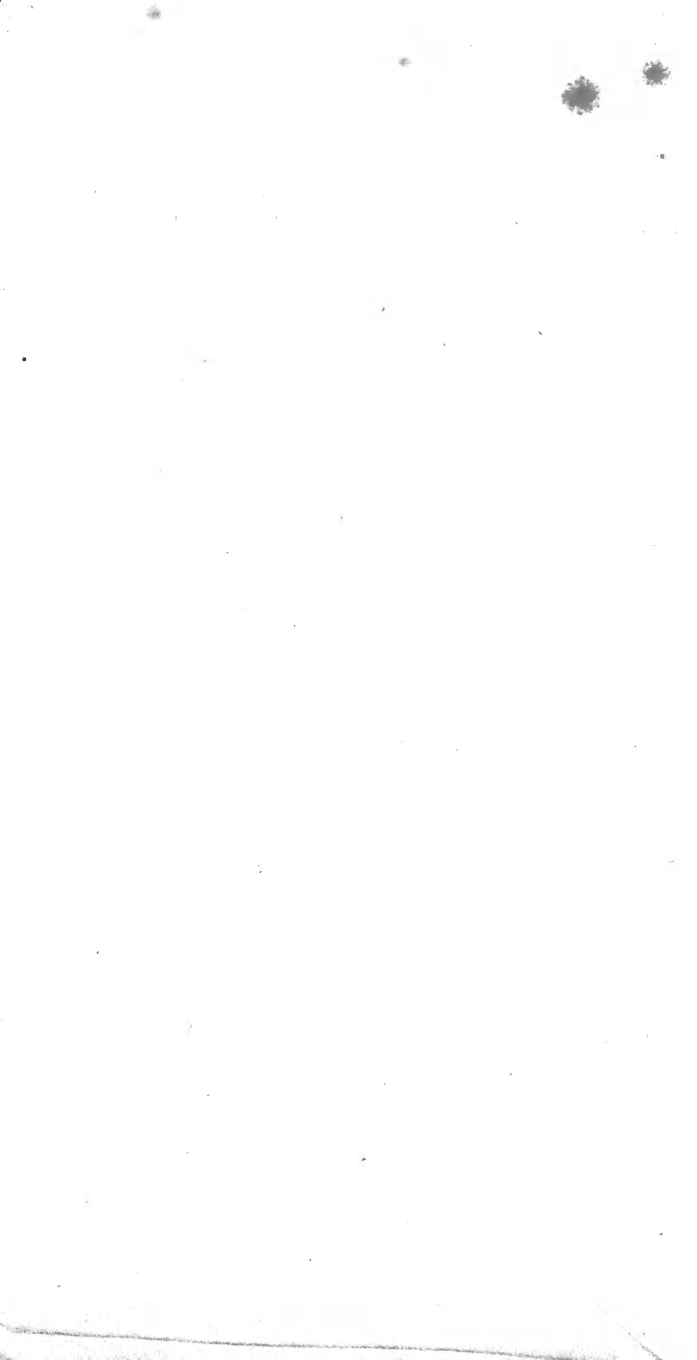
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GROUND PLAN OF COLONIAL MUSEUM, WELLINGTON.

*Complete design, dotted lines.*



CATALOGUE  
OF THE  
COLONIAL MUSEUM,  
WELLINGTON,  
NEW ZEALAND.

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PUBLISHED BY AUTHORITY.

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WELLINGTON:

1870.





## P R E F A C E.

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THE Colonial Museum, established in connection with the New Zealand Geological Survey, in September, 1865, was first opened to the public in December of the same year. The object for which it was formed is best explained by quoting the following passage from my first Report to the Government concerning it, dated September 11, 1866 :—

“One of the most important duties in connection with the geological survey of a new country is the formation of a scientific Museum, the principal object of which is to facilitate the classification and comparison of the specimens collected in different localities during the progress of the survey.

“By this means only is a reliable basis obtained for a general system of geological nomenclature, the value, proof, and application of which to the development of the country depends mainly upon the preservation of minutely recorded information respecting the history of individual specimens.

“In this respect a scientific Museum differs from one intended only for the popular diffusion of natural science—the former being a record office from which typical or popular Museums can be supplied with accurate information instructively arranged — an

arrangement which would prevent their lapsing, as is too frequently the case, into unmeaning collections of curiosities.

“This division of museums into two classes is now clearly recognized in England, and its adoption has been strongly recommended in the re-arrangement of the Natural History collections in the British Museum.

“It appears to me that an arrangement of this kind with regard to Museums is particularly applicable to New Zealand, as the most favourable for the rapid development of its resources ; and it is with this view that the Colonial Museum should be formed—not as a rival, but to assist the local typical Museums, the establishment of which should be encouraged in all the principal centres of population, for the purpose of giving instruction respecting the resources and natural history of the country, as well as acting as a stimulus and guide to local research in those branches of knowledge.

“The chief expense of the scientific Museum arises from the nature of the staff required for the comparison, analysis and discrimination of specimens, and for publication ; but as the labours of this staff will be available for the different local Museums, these latter will be spared all further superintendence beyond that of a Curator and a Committee of Management, and be maintained at a very small annual expense.

“In this way each Province might have a popular Museum on any scale of expense that suited the requirements and taste of the inhabitants, and for

such, the nucleus already exists in all the principal towns of the Colony ; but unless the arrangements of the Central Museum are such as enable the scientific work of examination and comparison to be performed with facility and accuracy, the progress that will be made in acquiring knowledge of the resources of the Colony will be slow and unsatisfactory, and in the long run effected only at a great and unnecessary expense."

The formation of the Museum was commenced chiefly with collections transferred from the Museum of the New Zealand Society, but the rapid accumulation of specimens by the officers of the Geological Survey, and the large number of deposits and donations received from all parts of the Colony, has already rendered it a useful exponent of the natural resources of these Islands. The additions which have been made to the Museum since its establishment, are enumerated in the various Annual Reports (*Museum and Laboratory Reports*, 1866—70), and as a preliminary step towards the production of a descriptive Catalogue, the following classified list of the contents of the Museum has been compiled and published by direction of the Honorable the Colonial Secretary.

In placing this Catalogue before the public, due allowance is requested for its many obvious deficiencies, owing in a great measure to the crowded state and rapid accumulation of the collections having prevented the adoption, from the commencement, of a definite system of arrangement. The want of works of reference has also rendered it necessary in many

branches of this Catalogue to adopt a provisional nomenclature, but it was considered advisable to issue this work, although imperfect, with the view of facilitating the proper arrangement, on a uniform system, of the valuable Museum collections which now exist in other parts of the Colony. In its preparation, the officers of the department have received great assistance from several amateurs, and particularly from Mr. E. Stowe, who was sedulously engaged for several months in preparing that portion of the Catalogue which relates to the recent shells of New Zealand. It has been found necessary to reserve several portions of the Catalogue for publication in a Supplement, which will be issued as soon as the requisite information can be obtained. As only a small edition of the present work has been printed, it will soon be necessary to reproduce it, when it will be recast in a more complete and descriptive form.

JAMES HECTOR.

*Wellington, August 20, 1870.*

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# ERRATA ET ADDENDA.

Page	39,	line	26,	for "Tourane" read "Touraine."
"	79,	"	29,	for "brivirostris" read "brevirostris."
"	80,	"	15,	for "Macrinridæ" read "Macruridæ."
"	80,	"	19,	for "bachus" read "bacchus."
"	80,	"	20,	for "briviuscula" read "breviuscula."
"	81,	"	26,	for "Coriadax" read "Coriodax."
"	81,	"	29,	for "arnanus" read "aruanus."
"	82,	"	15,	for "Athirina" read "Atherina."
"	83,	"	32,	for "Kakawai" read "Kahawai."
"	83,	"	34,	for "cerueum" read "cernuum."
"	83,	"	35,	for "seranus" read "serranus."
"	86,	"	1,	after "Nautilus" insert a full-stop, and alter to italics the name " <i>Breynius</i> ."
"	87,	"	22,	<i>dele</i> "8."
"	89,	"	35,	for "aurautica" read "aurantica."
"	90,	"	21,	for "D'Orbigney" read "D'Orbigny."
"	91,	"	15,	<i>dele</i> "b."
"	91,	"	17,	for "antipodanum" read "antipodarum."
"	93,	"	4,	for "straminus" read "stramineus."
"	93,	"	8,	for "rubicundis" read "rubicundus."
"	93,	"	29,	for "hiberculatas" read "tuberculata."
"	94,	"	19,	insert "? 272. 273. x Chatham Is."
"	95,	"		after line 31, insert "d. 312."
"	96,	"	15,	for "aculeatis" read "aculeatus."
"	103,	"	32,	for "Dosinea" read "Dosinia."
"	108,	"	8,	for "Dolorite" read "Dolerite."
"	110,	"	25,	for "Porphyry" read "Porphyrite."
"	112,	"	25,	for "Wakapawaka" read "Wakapuaka."
"	121,	"	8,	omit the words "and Amethyst."
"	122,	"	24,	after "containing" insert "Gold."
"	124,	"	27,	for "34·5" read "28·5."
"	138,	No.	87,	for "Chlorite Schist" read "Gneiss."
"	142,	"	36,	and elsewhere, for "Kaiko-waka-rere" read "Kiko-waka-reru."
"	150,	"	26,	for "in" read "into."
"	150,	"	38,	for "Acicular" read "Radiating."
"	153,	"	141,	for "Bzotite" read "Biotite."
"	184,	line	10,	for "contentionary" read "concretionary."
"	187,	"	20,	insert "II." and continue for each District on to page 193.
"	192,	"	28,	for "Aporhais" read "Chenopus."
"	193,	"	6,	insert "30 Dosinia (Lucinopsis)."
"	193,	"	22,	for "Aporhais" read "Struthiolaria."
"	201,	"	27,	for "liniaris" read "linearis."
"	201,	"	32,	after the words "Brown Coal" insert "Whangaroa, East Coast."

## ILLUSTRATIONS.

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GENERAL PLAN . . . . .	Frontispiece.
KEY TO ARRANGEMENT . . . . .	End of Vol.



# CATALOGUE.

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## COLLECTION OF TYPE MINERALS.

---

THIS Collection of Mineral Specimens has been arranged for the convenience of students, in accordance with the system of classification proposed by Professor Warrington Smyth, and given in the introduction to Bristow's "Glossary of Mineralogy,"—Longman, 1861, price 12s. ; in which useful work a full description of all known Minerals will be found, in a most convenient form for reference.

---

### METALLIC.

CLASS I. Character:—Brittle, and fusible with difficulty.

#### TITANIUM.

- 1 Rutile, with geniculated crystals. Tyrol.
- 2 „ showing brilliant colors. Tyrol.
- 3 „ in quartz. St. Gothard, Switzerland.
- 4 Iserine—Iserweise. Bohemia.
- 5 Titanium, acicular crystals in quartz. St. Gothard, Switzerland.
- 6 Red Titanium, on rock crystal. St. Gothard, Switzerland.
- 7 Sphene, in chlorite. Tyrol.

#### TANTALIUM.

- 8 Yttrotantalite. Sweden.

## TUNGSTEN.

- 9 Wolfram. St. Agnes, Cornwall.
- 10 Scheelspath, or Scheelite. Saxony.

## MOLYBDENUM.

- 11 Molybdate of Lead. Carinthia.
- 12 Sulphuret of Molybdenum, in quartz. Cumberland.
- 13 Molybdenite, with Wolfram, in quartz. Altenberg, Saxony.

## CHROMIUM.

- 14 Chromate of Iron, or Chrome Ore. Dun Mountain, Nelson, N. Z.

## URANIUM.

- 15 Uranium Ochre. Joachimsthal, Bohemia.
- 16 Uranglemmer. Saxony.
- 17 Phosphate of Uranium, in well-defined crystals. Cornwall.

## MANGANESE.

- 18 Manganocalcite. Schemintz, Hungary.
- 19 Manganite. Thuringia.
- 20 Nausmanite. Thuringia.
- 21 Greenovite. Pribram, Bohemia.
- 22 Carpholite. Bohemia.
- 23 Helvine. Schwarzenberg, Saxony.
- 24 Pyrolusite.
- 25 Diallogite. Nagyag, Transylvania.
- 26 Brown Oxide of Manganese. Devonshire.
- 27 Psilomelane. Tavistock.
- 28 Manganese Blende. Saxony.
- 29 Pyrolusite, in botryoidal crystals. Schneeberg, Saxony.
- 30 Grey Oxide of Manganese.
- 31 Pyrolusite—Binoxide of Manganese. Thuringia.
- 32 Fibrous Oxide of Manganese. Rey del monte, Mexico.
- 33 Rhodochrosite, variety of Diallogite. Hungary.

- 34 Psilomelane — Hydrrous Oxide of Manganese.  
Royal Iron Mine, Cornwall.  
35 Silicate of Manganese. Devonshire.  
36       "               "       Tavistock.

CLASS II. Character:—Brittle, easily fusible and volatile.

### ARSENIC.

- 37 Native Arsenic. Saxony.  
38 Arsenolite. Banat, Hungary.  
39 Realgar, massive,—Red Sulphuret of Arsenic.  
Moldava, in Banat.  
40 Realgar, in crystals. Hungary.  
41 Arsenical Pyrites, or Mispickel. Freiberg.  
42       "               "       with Galena. Freiberg.

### ANTIMONY.

- 43 Senarmonite—Oxide of Antimony. Constantine,  
Algeria.  
44 Antimonial Glance, with quartz. Braundsdorf,  
Freiberg.  
45 Red Antimony, or Kermesite. Freiberg.  
46 Berthierite; contains Sulphur, Iron, and Antimony.  
Braundsdorf, Freiberg.  
47 Jamesonite—Sulphuret of Antimony and Lead.  
Cornwall.  
48 Boulangerite—Sulphuret of Antimony and Lead.  
Andreasberg, Hartz.  
49 Antimonite. Felsobanya, Hungary.  
50 Sulphuret of Antimony. E. Indies.

### TELLURIUM.

- 51 Graphic Tellurium. Offenbanya, in Transylvania.

### BISMUTH.

- 52 Iridescent Sulphuret of Bismuth. Cornwall.  
53 Tannenite (Bismuth and Copper in quartz). Saxony.  
54 Native Bismuth, with Cobalt. Schneeberg, in  
Saxony.

CLASS III. Character:—Malleable, not reducible by heat alone.

### ZINC.

- 55 Sulphuret of Zinc, on Earthy Sulphate of Barytes. Derbyshire.
- 56 Zinc Blende, with Lead Glance. Freiberg.
- 57 " " in crystals. Schemnitz, Hungary.
- 58 " " " "
- 59 Spartalite—Oxide of Zinc. Sparta, New Jersey.
- 60 Calamine—Carbonate of Zinc. Pennsylvania.
- 61 Lapis Calaminaris. Derbyshire.
- 62 Blende, with Barytes. Black Rock Lead Mine, Cornwall.
- 63 Compact Blende.
- 64 Blende. Alston Moor, Cumberland.
- 65 Calamine, orange and yellow. Lead hill, Cumberland.

### CADMIUM.

- 66 Cadmium Blende. Bohemia.

### TIN.

- 67 Cassiterite—Oxide of Tin. Geyer, Saxony.
- 68 Oxide of Tin, crystallized on Chlorite. Cornwall.
- 69 " " " " with Tungstate of Iron, Chlorite, &c. Cornwall.
- 70 Tin Pyrites. Redruth, Cornwall.
- 71 Macled Crystal of Tin. Bohemia.
- 72 Oxide of Tin. Cornwall.
- 73 Sulphuret of Tin. Cornwall.
- 74 Oxide of Tin.
- 74a Crystallized Oxide of Tin, with quartz.
- 74b Veins of Oxide of Tin.

### LEAD.

- 75 Argentiferous Galena, on Clay Slate. Cornwall.
- 76 Galena.
- 77 Cerusite—Carbonate of Lead. Hartz.
- 78 Carbonate of Lead. Poughtengill, Cumberland.
- 79 Phosphate of Lead. Cumberland.
- 80 Carbonate of Lead. Cornwall.

- 81 Bournonite, with quartz. Liskeard, Cornwall.
- 82     "     variety of Kapink. Hungary.
- 83     "     from a slickenside. Eyam mines.
- 84 Native Galena.
- 85 Galena, with Iron pyrites. Freiberg.
- 86 Phosphate of Lead in feathery crystals. Cumberland.
- 87 Specular Galena, from a slickenside. Derbyshire.
- 88 Carbonate of Lead. Cornwall.
- 89 Cerusite, in fine crystals, with Lead Glance.  
Bohemia.
- 90 Phosphate of Lead—Pyromorphite. Roughtengill,  
Cumberland.
- 91 Phosphate of Lead. Pennsylvania.
- 92 Galena.
- 93 Arseniate of Lead, in hexagonal prisms. Cornwall.
- 94 Galena, Crystals of.
- 95     "     Cornwall.
- 96 Chromo-Phosphate of Lead. Cumberland.
- 97 Mimetite—Arseniate of Lead, in prismatic crystals  
on quartz. Cumberland.
- 98 Galena, crystallized in Hornstone. Liskeard,  
Cornwall.
- 99 Steel grained Galena. Cornwall.
- 100 Pyromorphite, with Fluor-spar. Saxony.
- 101 Sulphuret of Lead, with Sulphet of Barytes.  
Crich Hill.
- 102 Lead Ore. Cornwall.
- 103     "     "     on a slickenside. High Tor.
- 104 Lead Glance. Karinthia.
- 105 Blue Lead.
- 106 Molybdate of Lead.

## IRON.

- 107 Triplite, in quartz. Bohemia.
- 108 Titanic Iron. Norway.
- 109 Bog Iron Ore. Derwentwater.
- 110 Specular Iron, in laminar plates. St. Gothard,  
Switzerland.
- 111 Chloropal. Hungary.
- 112 Iron Pyrites, with Carbonate of Lime.

- 113 Kyrosite. Annaberg, Saxony.
- 114 Magnetic Oxide of Iron. Sweden.
- 115 Iron Pyrites, in quartz.
- 116 Stalactitic Limonite. Hungary.
- 117 Iron Pyrites, in quartz.
- 118 Hydrous Oxide of Iron. Lostwithel, Cornwall.
- 119 Red Hematite Ore.
- 120 Iron Pyrites.
- 121 Specular Iron, with quartz. Cumberland.
- 122 Carbonate of Iron, with quartz—Calcite of Zinc Blende. Freiberg.
- 123 Red Hematite (Botryoidal). Saxony.
- 124 Iron Pyrites, in crystals. Traversella, Piedmont.
- 125 Glance Iron. Schneeberg, Saxony.
- 126 Vivianite. St. Kea, near Truro, Cornwall.
- 127 Brown Hematite. Cornwall.
- 128       "               "
- 129 Iron Pyrites, in galt. Folkstone.
- 130 Magnetic Iron, in crystals. Hungary.
- 131 Hydrous Oxide of Iron. Lostwithel, Cornwall.
- 132 Limonite—Wood-iron. Thuringia.
- 133 Iron (fibrous carbonate), like Septaria, but with more iron.
- 134 Iron Pyrites.
- 135       "               "
- 136 Magnetic Iron, with Zinc Blende. Bodenmais, in Bavaria.
- 137 Carbonate of Iron, with Copper, &c. Oratunga Mine, north part of S. Australia.
- 138 Carbonate of Iron, with Copper, &c.       "
- 139 Chalybite, or Carbonate of Iron. Towey Consols, Cornwall.
- 140 Carbonate of Iron—Bog Iron Ore.
- 141 Lievrite. Isle of Elba.
- 142 Hematite. Near Burra Burra, S. Australia.
- 143 Bog Iron Ore. Blanket Bay, N. Z.
- 144 Cubes and octohedrons of Iron. Near Burra Burra Mine, S. Australia.
- 145 Iron Glance, in brilliant crystals.
- 146 Iron Pyrites. Kidnapper's Pt., Hawke's Bay, N. Z.

- 147 Iron Pyrites. Christchurch, N. Z.
- 148 Cubical Iron Pyrites. West coast, Otago, N. Z.
- 149 Carbonate of Iron. Lobenstein.
- 150 Bog Iron Ore. Blanket Bay, N. Z.
- 151 Triphyline. Bavaria.
- 152 Crystals of Hematite, in Basalt.
- 153 Speer kies—Spear headed crystals of Iron pyrites.  
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- 154 Gothite, in a cavity in quartz. Restormel Iron  
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- 155 Wehlrite—Lievrite—Silicate of Iron. Szarvasko,  
Hungary.
- 156 Spathic Iron, Carbonate, in lenticular crystals.  
Cornwall.
- 157 Brilliant Sulphuret, with Galena and Calcareous  
Spar.
- 158 Tungstate of Iron. Carrick Fell, Cumberland.
- 159 Specular Iron. Elba.
- 160 Iron Pyrites.
- 161 Cubical Iron Pyrites.
- 162 Crystallized Iron Pyrites.
- 163 Chromate of Iron. Dun Mountain, Nelson, N. Z.
- 164 Iron Pyrites, or Mundic of diggers,—Auriferous.  
Parra-parra Diggings, Nelson, N. Z.
- 165 Spathic Iron (Carbonate) in lenticular crystals.  
Devonshire.
- 166 Cubic Iron Pyrites.
- 167 Brown Hematite.
- 168 Red Hematite.
- 169 Specular Iron. Elba.
- 170       "               "               "
- 171 Iron Pyrites, encrusting quartz.
- 172       "               "               "
- 173       "               "               Elba.
- 174       "               "               "
- 175       "               "               Wharearua.
- 176 Magnetic Oxide of Iron, in octahedrons. India.
- 177 Yenite. Elba.
- 178 Childrenite. Tavistock, Devonshire.
- 179 Brown Hematite.

- 180 Botryoidal Hematite, in quartz crystals    Somersetshire.

#### COBALT.

- 181 Cobalt Bloom.    Bohemia.  
182 Grey Cobalt.    Cornwall.  
183 Cobalt—Tin-white.    Saxony.

#### NICKEL.

- 184 Breithauptite—Antimonial Nickel.    Andreastberg, Hartz.  
185 Copper Nickel.    Sangerhausen, Thuringia.  
186 Chloanthite, with Native Arsenic.    Andreastberg, Hartz.  
187 Nickel—Ochre, on Copper Nickel.    Cornwall  
188 Millerite—Sulphide of Nickel.    Dillenburg, Nassau.

#### COPPER.

- 189 Mixture of Carbonate and Oxide of Copper.  
190 Tennantite, with Copper pyrites.  
191 Sulphuret of Copper.  
192 Green Malachite.  
193 Copper Ore, on Green Malachite.    Burra Burra, S. Australia.  
194 Copper Pyrites, with Malachite and Calc-spar.    Peru.  
195 Grey Copper Ore — Bristol Copper Ore.    Connecticut.  
196 Malachite, in terminating crystals.    Moldava, Banat.  
197 Variegated Copper.    Cornwall.  
198 Copper Pyrites, with Galena.    Cornwall.  
199 Carbonate of Iron, with Fahlerz (Grey Copper).  
200 Copper Pyrites, with Fahlerz.    Westphalia.  
201 Green Malachite, crystallized.    Great Barrier Island, N. Z.  
202 Green Malachite.    Kawau Island, N. Z.  
203 Erusibite, var. of Copper Ore.    Freiberg.  
204 Blue Carbonate of Copper.    S. Australia.  
205 Carbonate of Copper.    S. Australia.  
206 Malachite.    Moldava, Banat.



- 207 Copper Ore, Sulphuret. Ireland.
- 208 Copper Ore, Oxide. S. Australia.
- 209 Oxide of Copper and Malachite.
- 210 Langite. Cornwall.
- 211 Oxide of Copper.
- 212 Earthy Malachite. S. Australia.
- 213 Sulphide of Copper.
- 214 Blue Malachite.
- 215 Malachite.
- 216 Green Malachite, in Crystallized Carbonate of Lime. S. Australia.
- 217 Blue and Green Carbonate of Copper, in quartz. S. Australia.
- 218 Red Oxide of Copper. S. Australia.
- 219 Sulphide of Copper.
- 220 Chessylite. Moldava, Banat.
- 221 Blue Malachite, on Garnet Rock. S. Australia.
- 222 Malachite. Dun Mountain, Nelson, N. Z.
- 223 Native Copper Ore. Cornwall.
- 224 Grey Copper Ore. Bristol Copper Mine, Connecticut.
- 225 Green Malachite, on quartz. S. Australia.
- 226 Schwatzite. Brexleg, Tyrol.
- 227 Peacock Copper Ore, var. of Copper Pyrites, with Uranite. Cornwall.
- 228 Native Copper. Lake Superior.
- 229 Red Oxide of Copper, crystallized in octahedrons. Levant Mine, Cornwall.
- 230 Sulphuret of Copper. Levant Mine, Cornwall.
- 231 Carbonate of Copper. Cornwall.
- 232 Copper Ore—Blue Malachite. S. Australia.
- 233 Copper Pyrites and Malachite.
- 234 Yellow Copper Ore, on Carbonate of Iron. Cornwall.
- 235 Blue Malachite, crystallized. Cornwall.
- 236 Red Copper, with quartz. Rhine.
- 237 Chalcotrichite—Red Oxide of Copper. Cornwall.
- 238 Cuprite. Cornwall.
- 239 Oxide of Copper.
- 240 Malachite. S. Australia.

- 241 Carbonate of Copper.
- 242 Crystallized Azurite — Carbonate of Copper.  
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- 243 Green Malachite.
- 244 Sulphuret of Copper.
- 245 " " " Cornwall.
- 246 Oxide of Copper.
- 247 " " " and Blue Malachite.
- 248 Copper Ore, Oxide. Cornwall.
- 249 Crystallized Green Malachite — Carbonate of  
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- 250 Malachite, or Carbonate of Copper.
- 251 Phosphate and Arsenate of Copper.
- 252 Blue Carbonate of Copper. S. Australia.
- 253 Black Oxide of Copper.
- 254 Grey Copper, containing a large proportion of  
Silver. Mexico.
- 255 Native Copper. Dun Mountain, Nelson.
- 256 " "
- 257 Copper of Cementation. Hungary.
- 258 Malachite, in crystallized quartz. S. Australia.
- 259 Atacamite—Muriate of Copper. Chili.
- 260 Malachite.
- 261 Copper Pyrites. Great Barrier Island, N. Z.
- 262 Redruthite, or Copper Glance. Cornwall.
- 263 Oxychloride of Copper.
- 264 Malachite, with Pelokonite.
- 265 Cupreous Breccia. Great Barrier Island, N. Z.
- 266 Malachite. S. Australia.
- 267 Blue Malachite. Cornwall.
- 268 Olivenite. Cornwall.
- 269 Tetrahedral Crystals of Copper, on quartz.  
St. Days, Cornwall.
- 270 Variegated Copper, vitreous and purple.
- 271 Right Prismatic Arseniate of Copper.
- 272 Red Oxide of Copper.
- 273 Green Carbonate of Copper (fibrous).
- 274 Carbonate of Copper.
- 275 Yellow Copper Ore. S. Australia.
- 276 Malachite. Burra Burra, S. Australia.

- 277 Native Copper. S. Australia.  
 278 Compact Black Copper Ore. Moonta, S. Australia.  
 279 Carbonate of Copper. Durgas Mine, Wallaroo,  
     S. Australia.  
 280 Protoxide of Copper. S. Australia.  
 281 Green Malachite, on Calc-spar crystals.  
 282 Peacock Copper Ore. Moonta, S. Australia.  
 283       "       "       "       "       "  
 284 Horse flesh Copper Ore. S. Australia.  
 285 Blue Crystallized Carbonate of Copper. S. Australia.  
 286 Green Carbonate of Copper. N. Rhine, S. Australia.  
 287 Oxide of Copper, with Green Carbonate. Moonta,  
     S. Australia.  
 288 Blue Carbonate of Copper. N. Rhine, S. Australia.  
 289       "       "       "       "       Kapunda, S. Australia.  
 290 Native Copper. Moonta, S. Australia.  
 291       "       "       "       "  
 292       "       "       "       "  
 293 Copper Ore. Burra Burra, S. Australia.  
 294 Yellow Copper Ore. Wallaroo Mine, S. Australia.  
 295 Green and Blue Carbonate of Copper. N. Rhine,  
     S. Australia.  
 296 Octohedrons of Copper, (rare.) S. Australia.  
 297 Silver Grey Copper Ore. S. Australia.  
 298 Red Oxide of Copper. Spring Creek, S. Australia.  
 299 Variegated Copper. Moonta, S. Australia.  
 300       "       "       "       "  
 301 Malachite. Burra Burra, S. Australia.  
 302       "       "       "       "       "

#### CLASS IV. NOBLE METALS :—Reducible by heat alone.

(Gold and Platinum in separate Case.)

##### SILVER.

- 303 Native Silver. Peru.  
 304       "       "       with Lead. Seigen, Westphalia.  
 305       "       "       in Gneiss. Freiberg.  
 306 Proustite—Light Red Silver Ore.  
 307 Silver Glance. Melan, Freiberg.  
 308 Silver, Native and Sulphuret, on quartz.

- 309 Silver Glance, in Calcite. Freiberg.  
 310 Sulphuret of Silver, with Blende. S. America.  
 311 Pyrargyrite—Red Silver. Hartz.  
 312 „ or Sulphuret of Silver and Antimony.  
 Mexico.  
 313 Muriate of Silver. Peru.

## MERCURY.

- 314 Cinnibar, with Mercury. California.  
 315 „ —Sulphuret of Mercury.

## NON-METALLIC.

## CLASS I. CARBON AND BORON.

## CARBON AND ITS NATURAL COMPOUNDS.

- 316 Foliated Coal. Silesia.  
 317 Miocene Pitch Coal. Bayrische, Alpen.  
 318 Anthracite, or Stone Coal, with vegetable impressions. Pennsylvania.  
 319 Anthracite, in quartz.  
 320 Lignite. Plaskynaston, N. Wales.  
 321 Anthracite. United States.  
 322 Fibrous Coal. Pennsylvania.  
 323 Lignite.  
 324 „ Mt. Grey.  
 325 Jet.  
 326 Graphite. Ceylon.  
 327 Plumbago. Seam, West side of Massacre Bay,  
 Nelson, N. Z.  
 328 Plumbago. India.  
 329 „ or Graphite.

## MINERAL OILS AND RESINS.

- 330 Asphalt, or Mineral Pitch.  
 331 Ozokerite. Boreslaw, Galicia.  
 332 Asphalt. Devonshire.  
 333 Elastic Bitumen, on Limestone. Derbyshire.  
 334 Kauri Gum. Auckland, N. Z.  
 335 „ „ Semi-fossil. N. of Auckland.  
 336 „ „ „ „ „

## CLASS II. SULPHUR AND SELENIUM.

## SULPHUR.

- 337 Sulphur. White Island, N. Z.
- 338 Native Sulphur, with Celestine. Sicily.
- 339 Sulphur. White Island, N. Z.
- 340 „ From active Volcano, Isle of Tanna.
- 341 Native Sulphur. Sicily.
- 342 Cylindrical Sulphur. Aeolian Islands.
- 343 Crystallized Sulphur.

## CLASS III. HALOIDS AND SALTS.

## POTASH.

- 344 Polyhalite. Austria.

## SODA.

- 345 Natrolite. Bohemia.

## BARYTA.

- 346 Barytes. Marienberg, Saxony.
- 347 Sulphate of Barytes. Nutfield, Surrey.
- 348 Barytes. Schemnitz, Hungary.
- 349 Crystals of Barytes. Hungary.
- 350 Sulphate of Barytes. Hartz.
- 351 Carbonate of Barytes. Crich Hill.
- 352 Barytes and Galena. Crich Hill.
- 353 Carb. of Barytes—Blende or Sulp. of Zinc —  
Blue Fluor-spar, &c. Crich Hill.
- 354 Barytes. Hungary.
- 355 „ Marienberg, Saxony.
- 356 Sulphate of Barytes. Unted Mines.
- 357 „ „ „ Waikouaiti, N. Z.
- 358 „ „ „ Matlock.

## STRONTIA.

- 359 Strontianite—Carb. of Strontia. Westphalia.
- 360 Sulphate of Strontia, or Celestine. Bristol.
- 361 Carbonate of Strontia. Argyleshire, Scotland.

## LIME.

- 362 Calcite. Hartz.
- 363 „ Freiberg.
- 364 „ variety called Dog-tooth Spar. Freiberg.
- 365 „ in two forms of crystals, with Iron pyrites.  
Freiberg.
- 366 Calcite. Freiberg.
- 367 „ in rhombic prisms, modified. Hartz.
- 368 „ in rhombic crystals. Hartz.
- 369 Iceland Spar—Carbonate of Lime. Iceland.
- 370 Selenite, or Sulphate of Lime.
- 371 „ from the Oxford Clay. Weymouth.
- 372 „ Cheltenham.
- 373 „
- 374 „ —Oxford Clay. Wiltshire.
- 375 „ Oamaru, N. Z.
- 376 „ Mt. Maitre, near Paris.
- 377 Carb. of Lime, rhombohedron, to show the  
cleavage.
- 378 Francolite—variety of Apatite. Cornwall.
- 379 Oolitic Limestone.
- 380 Fluete of Lime—Fluor. Cavern of High Tor.
- 381 Agaric Mineral—Fungus-like Tufa.
- 382 Magnesian Limestone, concretionary. Sunderland.
- 383 Cotham Marble.
- 384 Calcareous Tufa. New Zealand.
- 385 Pearl-spar. Cornwall.
- 386 Aragonite—Flos Terri. Styria.
- 387 Apatite. Tyrol.
- 388 Crystallized Pearl-spar, on quartz — Dolomite.  
Cumberland.
- 389 Iceland Spar, double refracting. Iceland.
- 390 Fluor. Matlock.
- 391 Phosphate of Lime, Nodule, Crag form. England.
- 392 Carbonate Lime, crystallized.
- 393 Datholite, in transparent crystals on Diorite, &  
Serpentine rock. New Jersey, U. S.
- 394 Parian Marble.
- 395 Aragonite. Bohemia.

- 396 Fluor and Quartz. Derbyshire.
- 397 Fluor Spar (cubes).
- 398 Conite—variety of Dolomite. Hesse.
- 399 Rose Fluor.
- 400 Moroxite—variety of Apatite. Siberia.
- 401 Dolomite. Tyrol.
- 402 Stalactite. Wanganui Caves, N. Z.
- 403 Aragonite. Devon.
- 404        "          "
- 405 Calc-spar, with Galena. Rutland.
- 406 Carbonate of Lime, crystallized.
- 407        "          "          " Palliser Bay, N. Z.
- 408 Fluor-spar, with Barytes. Saxony.
- 409 Sulphate of Lime—Alabaster. Leicestershire.
- 410 Baryto-calcite. Cumberland.
- 411 Apatite, in Granite. St. Just, Cornwall.
- 412 Aragonite. Dognaska, Banat.
- 413 Gypsum. White Island, N. Z.
- 414 Stalactite.
- 415        "          "
- 416 Carbonate of Lime and Iron Pyrites.
- 417        "          "          " crystallized with Iron Pyrites.
- 418 Anhydrite — Anhydrous Sulphate of Lime.  
Tyrol.
- 419 Purple Fluor-spar. Weardale, Durham.
- 420 Landscape Marble—Carbonate of Lime. Bristol.
- 421 Magnesian Limestone — Compact Dolomite.  
Nottinghamshire.
- 422 Hayesine. Peru.
- 423 Aragonite.
- 424 Fluor-spar. Saxony.
- 425 Brown Spar. Chemintz, Hungary.
- 426 Pearl Spar. Chemintz, Hungary.
- 427 Blue Fluor. High Tor.
- 428 Calcareous Spar, massive.
- 429 Sulphate of Lime, fibrous. Derbyshire.
- 430 Alabaster. Penarth, near Cardiff, S. Wales.
- 431 Fibrous Carbonate of Lime, or Satin Spar.  
Derbyshire.
- 432 Fibrous Gypsum—Sulphate of Lime. Derbyshire.

## MAGNESIA.

- 433 Magnesite. Silesia.  
 434 Carbonate of Magnesia. N. America.

## ALUMINA.

- 435 Alumite—Alumstone. Hungary.  
 436 Wavellite—Phosphate of Alumina. Bohemia.  
 437       "       "       "       "       "  
 438       "       "       "       "       " Nassau.  
 439 Turquois. Ceylon.

## ZIRCONIA.

- 440 Wöhlerite. Norway.

## CLASS IV. EARTHS—Silica, Alumina, Magnesia, and their Hydrates.

## SILICA.

- 441 Rock Crystal. Madagascar.  
 442 Smoky Quartz, with Iridescent Specular Iron.  
       Cumberland.  
 443 Crystals of Quartz. St. Agnes, Cornwall.  
 444 Chalcedony—variety of Quartz. Iceland.  
 445 Quartz, crystallized.  
 446 Rose Quartz. Bavaria.  
 447 Ice Quartz, with Oxide of Manganese. Cornwall.  
 448 Silicified wood. Kowhai R., Mt. Grey, Canterbury.  
 449       "       "       polished section. Antigua, W.  
       Indies.  
 450 Moss Agate. Rhenish Prussia.  
 451 Jasper. Tyrol.  
 452 Ribbon Jasper. India.  
 453 Double hexahedral Pyramids of Quartz.  
 454 Chrysoprase. Silesia.  
 455 Hornstone. Tyrol.  
 456 Lydian Stone. Saxony.  
 457 Amethystine Quartz. Tyrol.  
 458 Chalcedonic Quartz—Carnelian. E. Indies.



- 459 Quartz Crystals—locally called Mountain Diamonds. Tyrol.
- 460 Crystallized Quartz.
- 461 Agate. Upper Hutt, Wellington, N. Z.
- 462 Semi-Opal.
- 463 Brown Quartz.
- 464 Chalcedony. Otepopo, Otago, N. Z.
- 465 Purple Quartz. Malvern Hills, Canterbury.
- 466 Rose Quartz. Prussia.
- 467 Violet Quartz.
- 468 Chert, or Hornstone.
- 469 Wood Opal. Hungary.
- 470 Crystallized Quartz.
- 471 Aventurine.
- 472 Hornstone.
- 473 Ferruginous Quartz.
- 474 Wood Opal. Tasmania.
- 475 Common Opal.
- 476 Quartz, massive.
- 477 Chrysoprase. Scotland.
- 478 Silicified Wood. Middle Island, N. Z.
- 479 Common Opal. Kaschau, Hungary.
- 480 Menilite—var. of Opal. Near Paris.
- 481 Jasper.
- 482 Fossil Wood. S. Australia.
- 483 Chalcedony.
- 484 Opalite. Norway.
- 485 Chalcedony. Moeraki, Otago, N. Z.
- 486 Crystallized Quartz. Cornwall.
- 487       "       "       on Clay Slate. Cornwall.
- 488 Quartz, with Pyrites. Cornwall.
- 489 Agate Rock. Near Dresden, Saxony.
- 490 Silicified Wood. Tasmania.
- 491       "       "       "
- 492 Onyx. Oberstein.
- 493 Agate Pebbles. Ichaboe.
- 494 Quartz Rock.
- 495 Hyalite, or Muller's Glass. Bohemia.
- 496 Radiated Quartz.
- 497 Horny Opal. S. Australia.

- 498 Flints. Egypt.  
 499 „ conglomerate.  
 500 „ „  
 501 Flint. Thames River.  
 502 Chert Chalcedonic Vein, associated with Pitch  
 Stone Vein. Isle of Arran.  
 503 Hyalite, on Micaceous Quartz. S. Australia.  
 504 Clumo Calcite, in Hornstone. Saxony.  
 505 Ribbon Jasper. Siberia.  
 506 „ „ Sebastian.  
 507 Scotch Pebble.  
 508 „ „  
 509 Carnelian.  
 510 Fiorite, or Pearl Sinter. Tuscany.  
 511 Catseye—variety of Chalcedonic Quartz. Ceylon.  
 512 Silicified Wood. Tasmania.  
 513 Rose Resinite.  
 514 Agate. Moeraki, Otago.  
 515 Amethyst. Achil Island, Ireland.  
 516 „ „  
 517 Quartz, coated with Oxide of Iron. Cornwall.  
 518 Porcelain Jasper. Kindern, Baden.  
 519 Blood Stone. India.  
 520 „ „ polished. India.  
 521 Rock Crystal.  
 522 Quartz, polished.

## ALUMINA.

- 523 Corundum. India.  
 524 „ „  
 525 Common Corundum, with Mica, &c. China.  
 526 Hydrotalcite, or Nacrite in Talc. Norway.  
 527 Rotten Stone. Derbyshire.  
 528 Emery.  
 529 Spinelle. New York.  
 530 Saphir d'Eau. Ceylon.

## MAGNESIA.

- 531 Brucite, or Hydrate of Magnesia. Tyrol.  
 532 „ „ „ „ „

## CLASS V. SILICATES—Silicates and Aluminates.

- 533 Serpentine. Norway.
- 534 Olivine (detached)
- 535 „ in Basalt. Saxony.
- 536 Chrysolite, in Serpentine. New Jersey, United States.
- 537 Achmite, in Granite. Norway.
- 538 Apophyllite. Clausthal, Hartz.
- 539 Picrosmine. Saxony.
- 540 Gymnite. Tyrol.
- 541 Serpentine, consisting of Feldspar and Resplendent Hornblende. Portsay.
- 542 Serpentine. Cornwall.
- 543 „ „
- 544 Porphyry (green). „ Cautal.
- 545 Jaspersy Serpentine. Lizard Point, Cornwall.
- 546 Schiller Spar. Lizard.
- 547 Wollastonite, with Garnet. Auerbach.
- 548 Meerschauum. Bohemia.
- 549 „ Rotorua, N. Z.
- 550 Steatite.
- 551 Green Tale. Tyrol.
- 552 Pierolite. Texas, Pennsylvania, U. S.
- 553 Hypersthene. S. Australia.
- 554 Crystallized Actinolite. Tyrol.
- 555 Fassaita—variety of Pyroxene. Tyrol.
- 556 Sahlite, in Primitive Limestone.
- 557 Diopside. Tyrol.
- 558 Ægirine—variety of Pyroxene. Norway.
- 559 Augite. Vesuvius.
- 560 Lava, with Crystals of Pyroxene.
- 561 Nephrite. New Zealand—West coast of Otago.
- 562 „ „
- 563 Hornblende, massive, decomposing.
- 564 „ Kakaunui.
- 565 Tremolite. Tyrol.
- 566 Common Asbestos.
- 567 Asbestos.
- 568 „ „

- 569 Asbestos. Lizard, Cornwall.
- 570 Actinolite, in Tale. Tyrol.
- 571 Hornblende. Marienberg, Saxony.
- 572       "
- 573 Actinolite, fibrous.
- 574       "
- 575 Fibrous Asbestos.
- 576 Nacrite, with Gneiss. Freiberg.
- 577 Kyanite. Tyrol.
- 578 Diaspore. Hungary.
- 579 Andalusite. Ireland.
- 580       " Tyrol.
- 581 Staurotide. St. Gothard.
- 582 Anthophyllite. Bavaria.
- 583 Leucite. Vesuvius.
- 584 Moonstone. Tyrol.
- 585 Mosandrite. Norway.
- 586 Leucite. Vesuvius.
- 587 Adularia, or Moonstone. Ceylon.
- 588 Fuchsite. Tyrol.
- 589 Kyanite—variety of Photizite. Shetland.
- 590 Fullers Earth.
- 591 Picknite, with Glimmer. Saxony.
- 592 Lithomarge—a form of Kaolin. Bavaria.
- 593 Green Felspar and Sunstone. U. S.
- 594 Murchisonite. Scotland.
- 595 Sodalite. Norway.
- 596 Elaeolite—variety of Nepheline. Norway.
- 597 Orthoclase. Italy.
- 598 Topaz, with quartz. Saxony.
- 599 Dillnite. Hungary.
- 600 Lapis Lazuli. Siberia.
- 601       "
- 602 Adularia—variety of Orthoclase, with Chlorite.  
St. Gothard, Switzerland.
- 603 Albite. Tyrol.
- 604       "
- 605 Mesole, in Trap amygdaloid.
- 606 Cinnamon-stone.
- 607 Essonite, or Cinnamon-stone. Piedmont.

- 608 Labradorite.  
609       "               Coast of Labrador, N. America.  
610       "               Penig, Saxony.  
611 Paulite, with Labrador.   Tyrol.  
612 Pencline.   Tyrol.  
613 Aplome Garnets.   Saxony.  
614 Garnets.  
615 Crystallized Garnets, with Malachite. S. Australia.  
616 Garnets, cut and polished.   Ceylon.  
617 Common Garnet.  
618 Allochroite — var. of Massive Iron Garnet.  
      Bavaria.  
619 Pyrope, in Serpentine.   Saxony.  
620 Pinite.  
621 Obsidian.  
622       "               Mayor Is., N. Z.  
623       "               Tokay, Hungary.  
624       "               Mexico.  
625 Grossular.   Siberia.  
626 Pitchstone.   Saxony.  
627 Pyrope.   Kakauni, N. Z.  
628 Mesotype, or Natrolite.   Bohemia.  
629 Prehnite.   Tyrol.  
630       "               radiated.  
631       "               Dumbarton.  
632       "               Giant's  
633 Analcime, or Cubic Zeolite, on Basalt.   Causway, Ireland.  
634 Analcime.   Tyrol.  
635       "               or Cubizit.  
636 Heulandite.   Tyrol.  
637 Gehlenite.   Tyrol.  
638 Clinocllore.   Tyrol.  
639 Ripidolite.   Tyrol.  
640 Ichthyothalmite.   Seiser Alps, Tyrol.  
641 Desmine—variety of Stilbite.   Seiser Alps, Tyrol.  
642 Albine, with Natrolite and Phonolite.   Bohemia.  
643 Mesotype, in Amygdaloid (Old Red Sandstone).  
644 Chlorite (Slaty), with Garnets.  
645 Chabasite, with Phonolite.   Bohemia.

- 646 Epidote.
- 647     „     with Scapolite.   Norway.
- 648     „
- 649 Praseolite.   Norway.
- 650 Quartz, with Chlorite.   Ninety-mile Beach, N. Z.
- 651 Heulandite, Crystallized.
- 652 Thulite.   Tyrol.
- 653 Mica, with Tourmaline.   Siberia.
- 654     „     Charleston, Nelson.
- 655     „     „     „
- 656     „     „     „
- 657 Talc Mica.
- 658 Undulated Mica, with quartz.   Siberia.
- 659 Ottrelite.   Belgium.
- 660 Idocrase — Mica and Pyroxene, crystallized.  
      Vesuvius.
- 661 Vesuvian (Idocrase).   Vesuvius.
- 662 Idocrase.   Vesuvius.
- 663 Zeolite (compact).
- 664 Penglimmer.   Tyrol.
- 665 Epidote, compact, with quartz and felspar.
- 666 Saussurite.   Alps.
- 667 Stilbite, radiated.   Nova Scotia.
- 668 Topaz.   Brazil.
- 669     „
- 670     „
- 671 Emeralds.   Ceylon.
- 672 Astrophyllite.   Norway.
- 673 Lepidolite—Lithia Mica.
- 674 Pyrophillite.   N. York.
- 675 Mica Slate.
- 676 Axinite.   Daupheny.
- 677 Tourmaline.   Carinthia.
- 678     „     St. Michael's Mt.
- 679     „
- 680     „
- 681 Zircon.   Siberia.
- 682 Rubellane.   Boreslav.
- 683 Spodumene, or Triphane.   Tyrol.
- 684     „

- 685 Hauyne.  
686 Schorl, in quartz. Cornwall.  
687 „ in granite vein in Mica Slate. Portsay.  
688 „  
689 „ Cumberland.  
690 Beryl. S. Australia.  
691 „ Connecticut.  
692 „ S. Australia.  
693 „ in quartz. Bavaria.  
694 „ S. Australia.  
695 Allochroite.  
696 Pyrenaite.  
697 Magite. Sicily.
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## II. COLLECTION OF TYPE ROCKS

FROM EUROPE AND OTHER COUNTRIES.

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Arranged according to the method adopted in  
elementary works on Geology.

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- 1 Granite, syenitic. Mt. Sorel, Leicestershire.
- 2 " Banffshire.
- 3 " Dancing Cairn, near Aberdeen.
- 4 " Europe.
- 5 " Near Aberdeen.
- 6 " passing into Granite veins of Sausstre.  
Mt. Buvere.
- 7 Granite—Graphic vein in Gneiss. Is. of Harris.
- 8 Veins in Granite. Mt. Sorel, Leicestershire.
- 9 Granite. Europe.
- 10 Granite rock. Near Servos.
- 11 Quartz vein, in Granite. Charnwood Forest.
- 12 Granite. Gundannox, Arran.
- 13 " (White), in junction with Trap. Arran.
- 14 " Dancing Cairn, near Aberdeen.
- 15 " (Rose Felspar). Europe.
- 16 " Europe.
- 17 " Summit of Mt. Blanc.
- 18 " large grained. Aberdeenshire.
- 19 " coarse. Europe.
- 20 " Deeside, Aberdeenshire.
- 21 " Near Aberdeen.
- 22 " with Dark Felspar. Europe.
- 23 " Europe.
- 24 " syenitic. Peterhead.
- 25 Granitic rock. Near Servos.
- 26 Quartz, Felspar, and Schorl. Europe.



- 27 Syenitic Granite. Charnwood Forest.
- 28 Syenite. Europe.
- 29 " Malvern.
- 30 " Malvern Hills.
- 31 " Charnwood Forest.
- 32 Syenite. Malvern Hills.
- 33 " Malvern.
- 34 Hypersthene rock, associated with Hornblende rock. Peterhead.
- 35 Hypersthene rock, associated with Hornblende Schist. Banffshire.
- 36 Hypersthene rock. Ayrshire.
- 37 " " associated with Hornblende rock. Near Portsay, Banffshire.
- 38 Hornblende rock. Europe.
- 39 Hornblende. Europe.
- 40 Hornblende rock. Athol.
- 41 " " Europe.
- 42 " " or Schist. Perthshire.
- 43 " " Banffshire.
- 44 Serpentine, vein in transition Hornblende rocks. Portsay, Banffshire.
- 45 Serpentine, vein in transition rocks. Ayrshire.
- 46 Serpentine. Anglesea.
- 47 " vein in transition Hornblende. Portsay, Banffshire.
- 48 Serpentine. Europe.
- 49 Jaspery Serpentine. Europe.
- 50 Serpentine. Europe.
- 51 " Scotland.
- 52 Toadstone. Crich Hill.
- 53 " " "
- 54 Pitchstone, vein in Old Red Sandstone. Arran.
- 55 " Black. Rume.
- 56 Claystone, vein in Old Red Sandstone, associated with veins of Pearl and Pitchstone. Arran.
- 57 Claystone, vein in Old Red Sandstone. Is. of Arran.
- 58 Greenstone, or Augite rock. Perth.
- 59 " (Coal formation). Europe.
- 60 " (Amygdaloidal). Europe.

- 61 Augite rock, or Greenstone. Is. of Arran.
- 62 Wacke, with Augite. Calton Hill, Edinburgh.
- 63 Amygdaloid. Ireland.
- 64 Trap Amygdaloid. Crich Hill.
- 65 Amygdaloidal Greenstone, or Porphyry. Europe.
- 66 Basalt. Scotland.
- 67     "      Europe.
- 68     "      Arthur's Seat, Edinburgh.
- 69     "      "
- 70     "      (Amygdaloidal). Crich, Matlock.
- 71     "      Europe.
- 72 Greenstone (Augite rock). Corstophine Hill, near Edinburgh.
- 73 Porphyritic Pitchstone, passing into Pearlstone. Newton-in-Moffatt.
- 74 Amygdaloidal. Base of High Tor, Matlock.
- 75 Claystone Porphyry. St. Leonard's Craig, Edinburgh.
- 76 Claystone Porphyry. Calton Hill, Edinburgh.
- 77     "      "      Pentland Hills, near Edinburgh.
- 78 Pitchstone, Porphyritic, vein in Old Red Sandstone. Arran.
- 79 Clinkstone, vein in Old Red Sandstone. Is. of Arran.
- 80 Clinkstone. Near Edinburgh.
- 81     "      Black wood Hill, near Edinburgh.
- 82 Basalt, with Olivine. Europe.
- 83     "      (porous). Europe.
- 84     "      Amygdaloidal. Europe.
- 85 Lava. Vesuvius.
- 86     "      "
- 87     "      Monte Rosso.
- 88     "      Amygdaloidal. St. Jago.
- 89 Obsidian.
- 90     "      Mt. Hecla.
- 91 Lava. Vesuvius.
- 92     "      "
- 93     "      "
- 94     "      Scoriaceous. Vesuvius.

- 95 Lava. Vesuvius.
- 96 „ Arragonitic. Terre-di-Bassano, Vesuvius.
- 97 „ with crystals of Pirossini, from larva formation of 1811. Vesuvius.
- 98 „ containing Olivine. Vesuvius.
- 99 „ Vesuvius.
- 100 „ of 1820, with Pyroxene. Vesuvius.
- 101 „ Vesuvius.
- 102 Leucite, in Lava. Vesuvius.
- 103 Volcanic Bomb. Vesuvius.
- 104 Gneiss. Alps.
- 105 „ Europe.
- 106 Alpine Greywacke, Metamorphic. Alps.
- 107 Chlorite Slate. Europe.
- 108 Schistose Pebbles, in Chloritic Slate. Cornwall.
- 109 Flinty Slate. Europe.
- 110 Mica Slate. Europe.
- 111 Talc Schist, passing into Hornblende Schist. Portsay.
- 112 Micaceous Schist—consists of Quartz and Mica arranged in layers, usually curvilinear. Europe.
- 113 Talc Schist, associated with Hornblende and Serpentine rocks. Europe.
- 114 Mica Slate. Banffshire.
- 115 „ „ Europe.
- 116 Hornblende Schist. Portsay, Banffshire.
- 117 Hornblende Slate. Hill of Crandert, Forfarshire.
- 118 Mica Slate, associated with Chlorite Slate. Loch Earne Hd., Perthshire.
- 119 Limestone Beds, in Mica Slate. Near Portsay, Banffshire.
- 120 Limestone, in Gneiss, containing Coccolite. Europe.
- 121 Limestone, in Mica Slate. Brig of Boyd, Banffshire.
- 122 Limestone veins, in Mica Slate. Near Portsay, Banffshire.
- 123 Limestone (Primary), with Serpentine. Europe.
- 124 „ in Gneiss, containing Coccolite. Is. Harris.

- 125 Limestone (Silurian). Europe.
- 126 Bala Limestone (Silurian). Europe.
- 127 " " " "
- 128 Limestone.
- 129 Mountain Limestone. Clifton, Bristol.
- 130 Carboniferous Limestone. Middleton Moor.
- 131 Metamorphic Rock—"Greywacke." Europe.
- 132 Llandeilo Flagstone (Silurian). Wales.
- 133 Skiddaw Slate. Europe.
- 134 Limestone, Silurian. Dudley.
- 135 Ludlow Rock, Silurian.
- 136 Flinty Slate, associated with Clay Slate and  
"Greywacke" Schist. Lead hills, Roadside.
- 137 Bala Limestone (Silurian). Europe.
- 138 Devonian Schist. Dartmoor.
- 139 Old Red Sandstone (Micaceous). Europe.
- 140 " " " — Devonian Conglomerate.  
Scotland.
- 141 Old Red Sandstone, Devonian. Wind Cliff, Wales.
- 142 New Red Sandstone, or Saliferous, with Sulphate  
of Lime in veins and concretions. Leicestershire.
- 143 Devonian Coral Limestone. Torquay.
- 144 " " " "
- 145 Old Red Sandstone (Devonian). "Europe.
- 146 Devonian. Exeter.
- 147 Devonian Conglomerate. Europe.
- 148 Old Red Sandstone—Devonian. Near Clifton.
- 149 Coal Grit. Leicestershire.
- 150 Indurated Limestone, Coal Measure. Tenby, Wales.
- 151 Millstone Grit. Somersetshire.
- 152 Coal Schist, indurated by igneous action. Tenby,  
S. Wales.
- 153 Coal Shale. Tenby.
- 154 Millstone Grit. Black Rock, near Cromford.
- 155 Carboniferous Limestone. Europe.
- 156 New Red Sandstone. Europe.
- 157 Permanent Grit — Indurated Gritty Sandstone-  
(Coal formation.) Europe.
- 158 Mountain Limestone, altered by contact with  
Basaltic Dyke. High Tor, Matlock.

- 159 Coal Strata. Snebstone.
  - 160 Coal Schist, indurated by igneous action. Tenby,  
S. Wales.
  - 161 Millstone Grit. Europe.
  - 162 Coal Shale, with Vegetables. Europe.
  - 163 Dolomitic Sandstone — Dunstone, altered by  
igneous action. Matlock.
  - 164 Cornbrash Limestone—Oolite. Europe.
  - 165 Oolite. Portland.
  - 166 Forest Marble of the Oolite. Europe.
  - 167 Portland Stone. Portland.
  - 168 Fire Stone, or Malm Rock, or Upper Green Sand.  
Is. of Wight.
  - 169 Siliceous Grit, from Lower Green Sand. Ightam,  
Kent.
  - 170 Coral Rag—Oolite. Europe.
  - 171 Brown Spar. Vesuvius.
  - 172 Consolidated Mud (Diluvium).
  - 173 Trap Rock. Scotland.
  - 174 Great Oolite. Europe.
  - 175 to 325 Volcanic Rocks. Vesuvius.
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### III. FOREIGN FOSSILS.

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FROM THE UPPER MIOCENE STRATA OF VIENNA AND  
TRANSYLVANIA.

- 1 *Conus ventricosus.* *Bronn.*
- 2 „ *fuscocingulatus.* *Bronn.*
- 3 „ *Dugardini.* *Desh.*
- 4 (?)
- 5 *Cyprea pyrum.* *Gmel.*
- 6 „ *Duclosiana.* *Bach.*
- 7 *Mitra scobriculata.* *Broig.*
- 8 „ *ebenus.* *Lam.*
- 9 „ *Partschii.* *Hoern.*
- 10 „ *recticosta.* *Bell.*
- 11 „ *Bronnii.*
- 12 *Ancillaria inflata.*
- 13 „ *obsoleta.* *Bronn.*
- 14 „ *glandiformis.* *Lam.*
- 15 *Ranella marginata.* *Broig.*
- 16 *Aporrhais pes-pelcani.*
- 17 *Cassis suburon.* *Lam.*
- 18 *Triton Turbellianum.* *Grat.*
- 19 *Natica helicina.* *Broig.*
- 20 „ *millepunctata.* *Lam.*
- 21 „ *redempta.* *Mich.*
- 22 *Neritopsis radula.* *Lam.*
- 23 *Nerita Grateloupiana.* *Fer.*
- 24 „ *picta.* *Fer.*
- 25 *Trochus pictus.*
- 26 „ *quadristriatus.* *Dub.*
- 27 „ *turricula.* *Erun.*
- 28 „ *podolicus.* *Dub.*
- 29 *Turbo rugosus.* *Lin.*

- 30 *Monodonta angulata.* *Erh.*
- 31 *Erato lævis.* *Donovan.*
- 32 *Cancellaria cancellata.* *Lam.*
- 33 *Ringicula vuccinea.* *Brooch.*
- 34 *Columbella curta.* *Bell.*
- 35     "     *scripta.* *Bell.*
- 36     "     *subulata.* *Bell.*
- 37     "     *nassoides.* *Bell.*
- 38 *Buccinum duplicatum.* *Sow.*
- 39     "     *semistriatum.* *Broig.*
- 40     "     *Dujardini.* *Desh.*
- 41     "     *coloratum.* *Echw.*
- 42 *Rissoa mariæ.* *D'orb.*
- 43     "     *Zelandica.* *Montagu.*
- 44     "     *venus.* *D'orb.*
- 45     "     *Montagui.* *Par.*
- 46 *Rissoina decussata* *Mont.*
- 47     "     *pusilla.* *Broig.*
- 48 *Murex sublavatus.* *Bast.*
- 49 *Phasienella Erchwaldi.* *Hoern.*
- 50 *Bulla Lajoukaireana.* *Fer.*
- 51 *Dentalium incurvum.* *Reov.*
- 52     "     *mutabile.* *Dod.*
- 53 *Terebra fuxata.* *Brooc.*
- 54 *Cerithium rubiginosum.* *Erchw.*
- 55     "     *minutum.* *Serres.*
- 56     "     *margaritaceum.* *Broc.*
- 57     "     *Bronnii.*
- 58     "     *rubiginosum.* *Erchw.*
- 59     "     *scabrum.* *Oliv.*
- 60     "     *mitrale.* *Erchw.*
- 61     "     *disjunctum.* *Sow.*
- 62     "     *pictum.* *Bast.*
- 63     "     *Geuschneri.* *Pusck.*
- 64 *Pleurotoma cataphrata.* *Brog.*
- 65     "     *obeliscus.* *Desh.*
- 66     "     *monilis.* *Brog.*
- 67     "     *Coquandi.* *Bell.*
- 68     "     *Lamareckii.* *Bell.*
- 69     "     *asperculata.* *Lam.*

- 70 *Pleurotoma pustulata.* Brog.
- 71     "     *spiralis.* Serres.
- 72     "     *Schreibersi.* Hoern.
- 73     "     *turricula.* Broig.
- 74     "     *coronata.*
- 75     "     *dimidiata.* Lam.
- 76     "     *granulatocincta.* Munst.
- 77 *Fusus intermedius.* Mich.
- 78     "     *longirostris.* Broig.
- 79     "     *fuscorigulatus.* Hoern.
- 80     "     *Puscho.* Andr.
- 81 *Turritella Archimedia.*
- 82     "     *turris.* Bast.
- 83     "     *gradata.* Menke.
- 84     "     *bicarinata.* Erch.
- 85 *Melanopsis Bovei.* Fer.
- 86     "     *Martiniana.* Fer.
- 87 *Crepidula unguiformis.* Lam.
- 88 *Vermetus intortus.* Biv.
- 89 *Pycnodus Munsteri.* Ag.
- 90 *Heterostegina costata.* Reus.
- 91 *Cytherea meltolamella.* Lam.
- 92     "     *unidentata.* Bast.
- 93 *Cardita Partschi.* Goldf.
- 94 *Venus clathrata.*
- 95     "     *marginata.* Hoern.
- 96     "     *Vindobonensis.* Ch. Mager.
- 97     "     *suborbicularis.* Munst.
- 98 *Lucina columbella.* Lam.
- 99     "     *divaricata.*
- 100 *Arca Diluvii.* Lam.
- 101     "     *nodulosa.* Bron.
- 102 *Corbula carinata.* Duj.
- 103     "     *gibba.* Oliv.
- 104 *Cardium plicatum.* Esch.
- 105     "     *vindobonense.* Billowitz.
- 106 *Pectunculus polyodonta.* Bron.
- 107 *Ervilia pusilla.* Phil.
- 108     "     *Podolica.* Erch.
- 109     "     *gregaria.* Partsch.



- 110 Pectunculus obtusatus. *Partsch.*
- 111 Plicatula mystilina. *Phil.*
- 112 Pecten Malvinae. *Dub.*
- 113 „ sarmenticus. *Goldf.*
- 114 Chama gryphoides. *Lam.*
- 115 Macra (?)
- 116 Ostrea digitalina. *Erchw.*

## FROM MIOCENE STRATA OF BORDEAUX, FRANCE.

- 1 Oliva Basteroti.
- 2 Natica Delbosii.
- 3 (?)
- 4 Turbo Parkinsoni. *Basterot.*
- 5 Delphinula (?)
- 6 Cassis sabulon.
- 7 „ latissima.
- 8 Pyrula clava.
- 9 „ condita.
- 10 Fusus.
- 11 Buccinum veneris.
- 12 „ Denebis.
- 13 Pleurotoma Bossoni.
- 14 Buccinum vaccatum.
- 15 Turritella terebralis.
- 16 Strombus decussatus.
- 17 Melanopsis Dupontii.
- 18 Trochus patulus.
- 19 Cassis Rhondoleti.
- 20 Turritella (?)
- 21 Cerithium Salmo.
- 22 Cancellaria tochlearis.
- 23 Murex (?)
- 24 Cardita Jouanetti.
- 25 Lucina Columbella.
- 26 Venus casinoides.
- 27 Lucina divaricata.
- 28 Grateloupia donaciformis.
- 29 Venus erycinoides.
- 30 Cardium Budigalinum.

- 31 *Arca Diluvii.*
- 32 *Pectanculus.*
- 33 *Tellina.*
- 34 *Cyprina Islandica.*
- 35 *Pecten Beudonti.*
- 36 *Ostrea phalenacca.*
- 37 *Sigaretus canaliculatus.*
- 38 *Calyptra deformis.*
- 39 *Nummulites mamillatus.*
- 40        "       *perforatus.*
- 41        "       *complanata.*

FROM THE EOCENE STRATA (CALCAIRE GROSSIER) OF THE  
PARIS BASIN. *Named after "Deshayes."*

- 1 *Conus deperditus. Lam.*
- 2       "       *diversiformis. Lam.*
- 3       "       *turritus.*
- 4 *Cyprea inflata.*
- 5 *Mitra subplicata.*
- 6       "       *elongata. Lam.*
- 7       "       *labratula.*
- 8 *Pleurotoma lincolata.*
- 9       "       *filosa.*
- 10       "       *dentata.*
- 11       "       *granulata.*
- 12       "       *clunicularis.*
- 13       "       *textiliosa.*
- 14       "       *margaritula.*
- 15 *Fusus ficulneus.*
- 16       "       *Noce.*
- 17       "       *longævus.*
- 18       "       *levigatus.*
- 19       "       *subcarinatus.*
- 20       "       *subangulatus.*
- 21       "       *exiguus.*
- 22       "       *polygonus.*
- 23       "       *uniplicatus.*
- 24       "       *rugosus.*
- 25       "       *intortus.*

- 26 *Fusus levigata*.
- 27 „ *pyrus*.
- 28 *Murex tricarinatus*.
- 29 „ *calcitraba*.
- 30 *Rostellaria fissurata*.
- 31 „ var.
- 32 „ *columbella*.
- 33 *Strombus ornatus*.
- 34 *Oliva Lamontiana*.
- 35 *Ancillaria canalifera*.
- 36 „ *vuccinoides*.
- 37 „ *olivula*.
- 38 *Voluta spinosa*.
- 39 „ *ambigua*.
- 40 „ *vicerona*.
- 41 „ *crenulata*.
- 42 „ *muricina*.
- 43 „ *vittata*.
- 44 „ *parpula*.
- 45 „ *torulosa*.
- 46 „ *cythara*.
- 47 „ *labrella*.
- 48 „ (?)
- 49 „ *costalia*.
- 50 *Cassidaria carinata*.
- 51 *Marginella argystoma*.
- 52 „ *ovulata*.
- 53 *Ringicula ingens*.
- 54 *Bifrontia serrata*.
- 55 *Solarium patulum*.
- 56 *Littorina plicata*.
- 57 *Dentalium grande*.
- 58 „ *substriatum*.
- 59 *Natica spherica*.
- 60 „ *depressa*.
- 61 „ *sinuosa*.
- 62 „ *cepacea*.
- 63 „ *epiglotina*.
- 64 „ *mutabile*.
- 65 „ *sigaretina*.

- 66 *Natica patula*.
- 67 „ *labellata*.
- 68 *Ampullaria Villemettii*.
- 69 *Nerita Schmedeliana*.
- 70 *Buccinum stromboides*.
- 71 „ *Gossardi*.
- 72 „ *prismaticum*.
- 73 „ *crenularis*.
- 74 „ *ornatus*.
- 75 „ (*Phorus*) *agglutinans*.
- 76 *Mesalia antiquum*.
- 77 „ *sulcata*.
- 78 *Turritella incerta*.
- 79 „ *multisulcata*.
- 80 „ *granulosa*.
- 81 „ (?)
- 82 „ *carinifera*.
- 83 „ *imbricata*.
- 84 „ *imbricata*, var. b.
- 85 „ „ „ c.
- 86 *Cerithium angulosum*.
- 87 „ *contiguum*.
- 88 „ *cinctum*.
- 89 „ *cordieri*.
- 90 „ *unisulcatum*.
- 91 „ *serratum*.
- 92 „ *Roysii*.
- 93 „ *cristatum*.
- 94 „ *tuberculatum*.
- 95 „ *calcitrifroides*.
- 96 „ *denticulatum*.
- 97 „ *semi decussatum*.
- 98 „ *tricarinatum*.
- 99 „ *vicarinatum*.
- 100 „ *mutabile*.
- 101 „ *mutabile petite*.
- 102 „ *stephanophorum*.
- 103 „ *plicatum*.
- 104 „ „ var.
- 105 „ *papale*.

- 106 *Cerithium thiarrella.*
- 107       "       **biseriale.**
- 108       "       **lapidum.**
- 109       "       **Boblayer.**
- 110       "       **trochleare.**
- 111       "       **trochiforme.**
- 112       "       **conoidale.**
- 113       "       **dentatum.**
- 114       "       **involutum.**
- 115       "       **pleurotomoides.**
- 116       "       **lima.**
- 117       "       **Bouei.**
- 118       "       **angustum.**
- 119       "       **echinoides.**
- 120       "       **acutum.**
- 121       "       **nudum.**
- 122       "       **Hericarti.**
- 123 *Potamides Lamarckii.*
- 124 *Nummulina levigata.*
- 125       "       **variolaria.**
- 126       "       **striata.**
- 127       "       **planulata.**
- 128 *Melania marginata.*
- 129       "       **semi-striata.**
- 130       "       **lactea.**
- 131       "       **vuccinoides.**
- 132       "       **hordeaceus.**
- 133 *Lymnea longiscata.*
- 134 *Cyclostoma elegans.*
- 135       "       **mumia.**
- 136 *Pileopsis cornucopia.*
- 137       "       **dilatatus.**
- 138 *Calyptraea trochiforme.*
- 139 *Crepidula (?)*
- 140 *Sigaretus canaliculatus.*
- 141 *Siliquaria.*
- 142 *Parmophorus elongatus.*
- 143 *Teridina personata.*
- 144 *Cytherea levigata.*
- 145       "       **elegans.**

146	Cytherea	nitidula.
147	"	(?)
148	"	trigonula.
149	"	cuneata.
150	"	rustica.
151	"	obliqua.
152	"	incrassata.
153	"	sulcata.
154	Cardium	granulosus.
155	"	obliquum.
156	"	angusticostatum.
157	"	porulosum.
158	"	Raulinii.
159	Cardita	Basteroti.
160	"	pectunculoides.
161	"	asperula.
162	"	decussata.
163	"	imbricata.
164	Crassatella.	
165	"	lamellosa.
166	"	compressa.
167	"	tumida.
168	"	trigonata.
169	"	gibbosula.
170	Pectunculus	pulvinatus.
171	"	dispar.
172	"	terebratularis.
173	Cyrena	Gravesii.
174	"	deperdita.
175	Lucina	saxorum.
176	"	concentrica.
177	"	nitida.
178	"	squamosum.
179	"	concava.
180	"	Heberti.
181	"	gigantea.
182	Corbula	striata.
183	"	minuta.
184	"	complanata.
185	"	gallica.

- 186 *Venericardia planicostata*.
- 187       "       *elegans*.
- 188       "       *acuticostata*.
- 189       "       *coravuim*.
- 190 *Nucula margaritacea*.
- 191 *Mactra semisulcata*.
- 192 *Corbis lamellosus*.
- 193 *Erycina elliptica*.
- 194 *Venus*.
- 195 *Donax retusa*.
- 196 *Chama rusticula*.
- 197       "       *calcarata*.
- 198       "       *lamellosa*.
- 199 *Anomia tenuistriata*.
- 200 *Ostrea multicostata*.
- 201       "       *flabella*.
- 202 *Astrea panicea*.
- 203 *Madrepora Solanderi*.
- 204 *Palmipora* (?)
- 205 *Turbinolia elliptica*.
- 206       "       *crispa*.
- 207 *Alveolina*.
- 208 *Oculina raristella*.
- 209 *Echinolampus affinis*.
- 210 Rock specimen of *Calcaire Grossier*.

## FROM UPPER MIOCENE BEDS OF TOURANE, FRANCE.

- 1 *Cyprea globosa*. *Dugardin*.
- 2       "       *sanguinolenta*. *Hel.*
- 3       "       *affinis*. *Duj.*
- 4       "       (not named).
- 5       "       "       "
- 6 *Conus Mercati*. *Brooc.*
- 7       "       *Dugardin*. *Desh.*
- 8 *Trochus miliaris*. *Brooc.*
- 9       "       *n. sp.*
- 10       "       *incrassatus*. *Duj.*
- 11       "       *angulatus*.       "
- 12       "       *crenulatus*.       "

- 13 Monodonta Conturii. *Duj.*
- 14 Nerita asperata. „
- 15 Natica helicina. *Brocc.*
- 16 „ Josephina. *Riss.*
- 17 „ millepunctata. *Lam.*
- 18 Columbella nassoides. *Delard.*
- 19 Erato cypræola.
- 20 Ancillaria glandiformis. *Lam.*
- 21 Murex Sedgwickii.
- 22 „ exiguus. *Duj.*
- 23 Cerithium scabrum. *Olivi.*
- 24 „ lignitarium. *Fichw.*
- 25 „ papaveraceum. *Duj.*
- 26 Fusus.
- 27 „ rostratus. *Lam.*
- 28 „ lignarius, var. *Lin.*
- 29 Pleurotoma tuberculata-cincta. *Munster.*
- 30 „ interrupta. *Brocc.*
- 31 „ obeliscus. *Desm.*
- 32 Purpura angulosa. *Duj.*
- 33 Buccinum spectabile. *Mayer.*
- 34 Turritella Oriepelli. *Hoernes.*
- 35 „ subangulata. *Brocc.*
- 36 „ terebralis.
- 37 „ triplicata. *Duj.*
- 38 Calyptra muricata. *Basterot.*
- 39 Terebra.
- 40 Pyrella.
- 41 Pyrula reticulata. *Lanz.*
- 42 Helix turonensis.
- 43 Fissurella Italica. *Defr.*
- 44 Siliquaria anguina. *Lanz.*
- 45 Vermetus arenarius. *Lin.*
- 46 „ intortus.
- 47 Arca Brieslacki.
- 48 „ Turonica. *Duj.*
- 49 „ umbonata. *Lam.*
- 50 Pectunculus pulvinatus. *Lanz.*
- 51 Cardita affinis. *Duj.*
- 52 „ crassa. *Lam.*



- 53 Cardium Turonicum. *Mayer.*
- 54 Lima squamosa. *Duj.*
- 55 Venus casinoides. *Brong.*
- 56 Cytherea Bellovacina. *Lam.*
- 57 Dosinia exoleta.                    *"*
- 58 Ostrea sacellus. *Duj.*
- 59 Dendrophyllia irregularis. *Mich.*
- 60 Coralline.
- 61 Hornera Andegavensis. *Mich.*

TERTIARY—FROM THE UPPER MIOCENE STRATA OF  
PIEDMONT.

- 1 Cyprea pyrum. *Gmel.*
- 2     "   expansa. *Genè.*
- 3     "   annularia. *Brong.*
- 4     "   Europœa. *Mont.*
- 5     "   elongata. *Brocc.*
- 6     "   labrosa.                   *"*
- 7     "   porcellus                 *"*
- 8     "   amygdalum.               *"*
- 9     "   sphericulata. *Lam.*
- 10 Conus Brocchii. *Bron.*
- 11     "   Mercatii.                 *"*
- 12     "   antiquus. *Lam.*
- 13     "   Mercatii. *Bron.*
- 14     "   striatulus.               *"*
- 15     "   antidiluvianus. *Brug.*
- 16     "   ponderosus. *Brocc.*
- 17     "   (?)
- 18     "   pyrula. *Bron.*
- 19     "   betulinoides. *Lam.*
- 20 Cancellaria varicosa. *Bron.*
- 21     "   nodulosa. *Lam.*
- 22     "   (mitra mitrœformis ?). *Bronn.*
- 23     "   cancellata. *Lam.*
- 24     "   varicosa. *Brocc.*
- 25     "   contorta.
- 26     "   umbilicaris. *Bron.*
- 27     "   expidea.                   *"*

- 28 *Cancellaria ampullacea.* *Bron.*  
 29     " *elegans.* *Desh.*  
 30 *Nassa prismatica.* *Bron.*  
 31     " *obliquata.*     "  
 32     " *tenuicostata.* *Bell.*  
 33     " (?)  
 34     " *turrita.* *Borg.*  
 35     " *semistriata.* *Bron.*  
 36     " *costulata.* *Bell.*  
 37     " (?)  
 38     " *serrata.* *Bron.*  
 39     " *clathrata.*     "  
 40     " *flexuosa.*     "  
 41     " *conglobata.*     "  
 42     " *neritea.* *Lam.*  
 43 *Pleurotoma dimidiata.* *Bron.*  
 44     " *denticula.*  
 45     " *Bellardi.* *Desm.*  
 46     " *cataphracta.* *Bron.*  
 47     " *interrupta.*     "  
 48     " *monilis.*     "  
 49     " *Broochii.* *Bon.*  
 50     " *turricula.* *Bron.*  
 51     " *brevirostrum.* *Sow.*  
 52     " *rustica.* *Bron.*  
 53     " *loquandi.* *Bell.*  
 54     " *rotata.* *Bron.*  
 55     " *intorta.*     "  
 56     " *spiralis.* *Marc de Seor.*  
 57 *Fusus rostratus.* *Bron.*  
 58     " *lignarius.* *Lam.*  
 59     " *clavatus.* *Bron.*  
 60     " *longiroster.*     "  
 61     " *turricula.*     "  
 62 *Fasciolaria fimbriata.* *Bron.*  
 63 *Murex trunculus.* *Lin.*  
 64     " (?) *Bron.*  
 65     " *imbriatus.*     "  
 66     " *turritus.* *Bors.*  
 67     " *polymorphus.* *Bron.*

- 68 *Murex cristatus.* *Bron.*  
 69     " *plicatus.*  
 70     " *Lassaignes.* *Grat.*  
 71     " *erinaceus.* *Lin.*  
 72     " *scalaris.* *Bron.*  
 73     " *Brandaris.* *Lin.*  
 74 *Buccinum corrugatum.*  
 75     " *polygonum.* *Bron.*  
 76 *Mitra Bronnii.* *Mich.*  
 77     " *ramosa.*  
 78     " *ebenus.* *Lam.*  
 79     " *Borsoni.* *Bell.*  
 80     " *striatula.* *Bron.*  
 81     " *recticorda.* *Bell.*  
 82     " *astensis.*     "  
 83     " *striatula.* *Bron.*  
 84     " *turricula.*  
 85     " *fusiformis.* *Bron.*  
 86 *Cerithium vulgatum.* *Brug.*  
 87     " *vicinctum.* *Bron.*  
 88     " *crenatum.*     "  
 89     " *granulatum.*     "  
 90 *Turritella subangulatum.*     "  
 91     " *triplicata.*     "  
 92     " *tornata.*     "  
 93     " *cathedralis.* *Defr.*  
 94     " *Broochii.* *Bron.*  
 95 *Triton distortum.* *Defr.*  
 96     " *apennicum.*  
 97     " *intermedium.* *Defr.*  
 98     " *treptagonum.*     "  
 99     " *affine.* *Des.*  
 100 *Dentalium coarctatum.* *Lam.*  
 101     " *elephantivum.* *Desh.*  
 102     " *fissura.* *Lam.*  
 103     " *Bouei.* *Desh.*  
 104     " *dentalis.* *Lin.*  
 105     " *asperum.* *Mich.*  
 106     " *Noæ.* *Bon.*  
 107     " *triangulatum.* *Desh.*

- 108 Dentalium pseudo-dentalis. *Lam.*  
 109 „ inaequale. *Bron.*  
 110 „ Doseile. *Lam.*  
 111 „ circesmatum.  
 112 Columbella curta. *Bell.*  
 113 „ nassoides. „  
 114 „ thiara. *Bron.*  
 115 „ tenuicaudata. *Bon.*  
 116 „ erythostoma. „  
 117 „ scripta. *Bell.*  
 118 Solarium millegranum. *Lam.*  
 119 „ moniliformis. *Bronn.*  
 120 „ pseudo-perspectivum. *Bronn.*  
 121 „ plicatum. *Lam.*  
 122 „ simplex. *Bronn.*  
 123 Trochus papillosa. *Da Costa.*  
 124 „ carinatus.  
 125 „ patula. *Bron.*  
 126 „ magus. *Lin.*  
 127 „ crenulatus. *Bron.*  
 128 „ amedei. „  
 129 „ rotellaris.  
 130 „ striatus. *Lin.*  
 131 Phorus crispus. *Kon.*  
 132 „ infundibulam. *Bron.*  
 133 Turbo rugosus. *Lin.*  
 134 Aporrhais pes-pelcani. *Phil.*  
 135 „ pes-graculi. „  
 136 Terebra flammea. *Lam.*  
 137 „ duplicata. „  
 138 „ cinerea. *Bronn.*  
 139 Cassis texta. „  
 140 „ crumena. *Lam.*  
 141 „ variabilis. *Bell.*  
 142 „ denticulatum.  
 143 Purpura striatula. *Bronn.*  
 144 „ intermedia.  
 145 Cassidaria echinophora. *Lam.*  
 146 Ranella marginata. *Sow.*  
 147 Strombus mercatii. *Desh.*

- 148 *Natica glaucina.* *Lam.*
- 149     " *compressa.* *Sismondi.*
- 150     " *Salemiennes.* *Payr.*
- 151     " *pseudo-epiglotina.* *Sismondi.*
- 152     " *olla.* *Sezza.*
- 153     " *epiglotina.* *Sismondi.*
- 154     " *tenuiclausula.* *Sezza.*
- 155     " *plicatula.*
- 156     " *mamillaris.* *Lam.*
- 157     " *proteus.* *Bon.*
- 158 *Nerita picta.*
- 159 *Tornatella semistriata.* *Defr.*
- 160     " *punctulata.*
- 161 *Ancillaria glandiformis.* *Lam.*
- 162     " *obsoleta.* *Bron.*
- 163 *Oliva cylindracea.* *Borg.*
- 164 *Niso terebellum.* *Phil.*
- 165 *Melania semigranosa.* *Merle.*
- 166 *Melanopsis Bonelli.* *Lin.*
- 167 *Eulmia hastata.* *Sow.*
- 168     " *polita.* *Desh.*
- 169     " *subulata.* "
- 170 *Scalaria pseudo scalaris.* *Bron.*
- 171     " *contigua.* "
- 172 *Marginella lœvis.* *Desh.*
- 173 *Ringicula Bonellii.* "
- 174     " *marginata.* "
- 175     " *buccinea.* "
- 176 *Auricula mysotis.*
- 177 *Calyptraea muricata.* *Bron.*
- 178 *Crepidula.*
- 179     " *unguiformis.* *Lam.*
- 180     " *cochleare.*
- 181 *Pileopsis Ungaricus.* *Lam.*
- 182     " *faliosa.* *Desh.*
- 183 *Sigaretus halitoideus.* *Lam.*
- 184 *Calyptraea muricata.* *Brocc.*
- 185 *Fissurella neglecta.* *Desh.*
- 186     " *græca.* *Lam.*
- 187 *Spirula-rostra Bellardii.* *Bell.*

- 188 *Cardium multicostatum.* *Bron.*  
 189     "     *multirostra.* *Lam.*  
 190     "     *aculeatum.*  
 191     "     *echinatum.* *Lin.*  
 192     "     *fragile.* *Brac.*  
 193     "     *sulcatum.* *Lam.*  
 194 *Cardita rhomboides.* *E. Lesson.*  
 195     "     *intermedia.* *Lam.*  
 196     "     *elongata.* *Bron.*  
 197     "     *ajar.* *Brug.*  
 198     "     *pudruata.* *Sismondi.*  
 199 *Venus cineta.* *Ag.*  
 200     "     (?)  
 201     "     *Venetiana.* *Sismondi.*  
 202     "     *Brongnartii.* *Sayr.*  
 203     "     *albernorus.* *Sismondi.*  
 204     "     *gallina.* *Lin.*  
 205     "     *excentrica.*  
 206     "     *pedemontana.* *Sismondi.*  
 207     "     *plicata.* *Gmel.*  
 208 *Tellina tumida.* *Lin.*  
 209     "     *planata.*     "  
 210     "     *serrata.*  
 211     "     *corbis.* *Bronn.*  
 212     "     *crassa.*  
 213 *Arca antiqualis.* *Lin.*  
 214     "     *diluvii.* *Lam.*  
 215     "     *Helbingi.* *Brug.*  
 216     "     *mytiloides.*  
 217     "     *Noë.* *Lin.*  
 218 *Lucina sparia.* *Desh.*  
 219 *Nucula placentina.* *Lam.*  
 220 *Mactra triangula.*  
 221 *Venerupis.*  
 222     "     *pernarum.* *Bon.*  
 223 *Terebratula grandis.* *Bl.*  
 224 *Pecten flabelliformis.*  
 225     "     *varius.*  
 226     "     *polymorphus.*  
 227     "     *scabrellus.* *Lam.*

- 228 *Pecten latissimus.* *Br.*  
 229   "  *pes-felis.* *Lam.*  
 230   "  *cristalus.* *Bronn.*  
 231   "  *opercularis.* *Lam.*  
 232   "  *pyxidatus.* *Broc.*  
 233 *Pectunculus pilosus.*   "  
 234 *Lima inflata.* *Lam.*  
 235 *Petricola fragilis.*  
 236 *Cytherea chione.*  
 237 *Lutraria rugosa.* *Lam.*  
 238   "  *elliptica.*   "  
 239   "  *lacunosa.*   "  
 240 *Artemis orbicularis.*  
 241 *Solecurtus coarctatus.* *Desm.*  
 242 *Solen vagana.* *Lin.*  
 243 *Chama gryphina.* *Lam.*  
 244   "  *asperella.*   "  
 245 *Ostrea undata.*   "  
 246 *Vermetus intortus.* *Bron.*  
 247   "  *glomeratus.* *Sismondi.*  
 248   "  *gigas.*  
 249   "  (?)  
 250 *Cellipora echinata.*  
 251 *Balanus stellaris.* *Bronn.*  
 252   "  *discors.*  
 253 *Turbinolia costata.* *Goldf.*  
 254   "  *pedemontana.*  
 255 *Murex brandaris.* *Lin.*

FROM THE UPPER EOCENE STRATA—BARTON CLAY OF  
HAMPSHIRE, ENGLAND.

- 1 *Voluta spinosa.*  
 2   "  *digitalina.* *Lam.*  
 3   "  *athleta.*  
 4   "  *ambigua.*  
 5 *Murex asper.*  
 6 *Pyrula bulbiformis.*  
 7 *Fusus regularis.*  
 8   "  *porrectus.*

- 9 *Fusus longævus*.
- 10 *Pleurotoma rostrata*.
- 11       "       (?)
- 12       "       (?)
- 13       "       (?)
- 14       "       *attenuata*. (?)
- 15 *Seraphs convolutus*.
- 16 *Rostellaria rimosa*.
- 17 *Buccinum canaliculatum*.
- 18       "       *lavatum*.
- 19       "       *junceum*.
- 20 *Cancellaria evulsa*.
- 21 *Cassidaria*.
- 22 *Actæon simulatus*.
- 23 *Typhis pungens*.
- 24 *Turritella editus*.
- 25       "       *imbricataria*.
- 26 *Natica depressa*.
- 27       "       *ambulaerum*.
- 28       "       *patula*.
- 29       "       *Hantoniensis*.
- 30 *Trochus monilifer*.
- 31 *Solarium canaliculatum*.
- 32 *Conus dormitor*.
- 33 *Triton argutus*.
- 34 *Venericardia globosa*.
- 35 *Pectunculus diletus*.
- 36 *Chama squamosa*.
- 37 *Crassatella tenuisulcata*.
- 38       "       *sulcata*.
- 39 *Nucula scalaris*.
- 40 *Corbula cuspidata*.
- 41 *Cardium turgidum*.
- 42 *Tellina ambigua*.
- 43 *Cytherea incrassata*.
- 44       "       (?)
- 45 *Calyptra trochiforme*.
- 46 *Dentalium entalis*.
- 47 *Lamna elegans*. (Teeth.)
- 48 *Otodus obliquus*.       "



#### IV. TYPICAL FORMS OF RECENT MOLLUSCA.

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The system of classification adopted is that given in "Woodward's Manual," — Weale's Series, 1851, price 5s. 6d.

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##### ARGONAUTIDÆ.

- |   |                 |             |                |
|---|-----------------|-------------|----------------|
| 1 | Argonauta argo. | <i>Lin.</i> | Mediterranean. |
| 2 | " "             |             | Panama.        |

##### SEPIADÆ.

- |   |                    |             |                |
|---|--------------------|-------------|----------------|
| 3 | Sepia officinalis. | <i>Lin.</i> | Mediterranean. |
|---|--------------------|-------------|----------------|

##### SPIRULIDÆ.

- |   |                |              |                  |
|---|----------------|--------------|------------------|
| 4 | Spirula lævis. |              | New Hebrides.    |
| 5 | " "            | <i>Gray.</i> | Australian Seas. |

##### NAUTILIDÆ.

- |   |                     |             |              |
|---|---------------------|-------------|--------------|
| 6 | Nautilus Pompilius. | <i>Lin.</i> | Indian Seas. |
|---|---------------------|-------------|--------------|

##### STROMBIDÆ.

- |    |                       |             |                 |
|----|-----------------------|-------------|-----------------|
| 7  | Strombus canarium.    |             | New Caledonia.  |
| 8  | " "                   |             | Torres Straits. |
| 9  | " lentiginosus.       |             | New Caledonia.  |
| 10 | " epidromis.          |             | New Caledonia.  |
| 11 | " pugilus.            | <i>Lin.</i> | W. Indies.      |
| 12 | " gibberulus.         |             | New Hebrides.   |
| 13 | " "                   |             | Torres Straits. |
| 14 | Terebellum subulatum. |             | New Caledonia.  |
| 15 | Lagena smaragdula.    |             |                 |

- 16 *Rostellaria curvirostris*. *Lam.* Red Sea.  
17 *Seraphs terebellum*. *Lin.* China.  
18 *Pteroceras chiragra*. Mozambique.  
19       "                   "  
20       "       *lambis*.  
21       "                   "

## MURICIDÆ.

- 22 *Fasciolaria tulipa.* W. Indies.  
23       "       *trapezium.* Lin. Mozambique.  
24 *Murex regius.* S. America.  
25       "       "       Panama.  
26       "  
27       "       *tenuispina.* Lam. Moluccas.  
28 *Turbinello cornigera.* N. Caledonia.  
29       "       "       Moluccas.  
30 *Triton tuberosus.* N. Caledonia.  
31       "       *Spengleri.* Port Jackson.  
32       "       *pilearis.* Lin. Mozambique.  
33       "       "       New Caledonia.  
34       "       *fusiformis.* Port Jackson.  
35 *Ranella foliacea.* Brod. Mozambique.  
36 *Pisania granulata.* Sandwich Islands.  
37 *Ficula ficoides.* Lam. Mozambique.  
38 *Pyrella spirellus.* Lin.  
39 *Pyrula melongena.* Mexico.  
40 *Cyrtulus serotina.* Chem. Australia.  
41 *Cancellaria cancellata.* Mediterranean.  
42 *Fusus colus.* Lin. Ceylon.  
43 *Latirus polygonus.* Lin.

## BUCCINIDÆ.

- |    |                   |                             |
|----|-------------------|-----------------------------|
| 44 | Purpura           | Fiji Is.                    |
| 45 | „                 | sp. persica. New Caledonia. |
| 46 | „                 | Behring's St.               |
| 47 | „                 | aperta. Sandwich Is.        |
| 48 | „                 | vistrialis. Mazatlan.       |
| 49 | „                 | New Hebrides.               |
| 50 | Buccinum undatum. | Lin. Britain.               |
| 51 | „                 | N. Hebrides.                |

- 52 *Oniscia cancellata*. *Sow.* China.  
 53 *Eburna glabrata*. *Lam.* Mexico.  
 54 *Phos senticosus*. *Lin.* China.  
 55 " " N. Caledonia.  
 56 " " N. Hebrides.  
 57 *Nassa arcularia*. *Lin.* S. Seas.  
 58 *Monoceros cingulatum*. *Lam.* Mazatlan.  
 59 *Cassis testiculus*. W. Indies.  
 60 " " N. Hebrides.  
 61 " *glauca*.  
 62 *Ricinula* N. Hebrides.  
 63 " N. Caledonia.  
 64 " Fiji Is.  
 65 "  
 66 " *horrida*. *Lam.* S. Seas.  
 67 "  
 68 *Olivella undatella*. *Lam.* Mazatlan.  
 69 *Cassidaria Tyrrhena*. *Chem.* Mediterranean.  
 70 " *tessillata*. Wide Bay.  
 71 *Planaxis undulata*. *Lam.* Australia.  
 72 *Mangelia reticulata*. *Blain.* Mediterranean.  
 73 *Columbella mercatoria*. *Gmel.* Mexico.  
 74 *Concholepas Peruviana*. *Lam.* Peru.  
 75 *Ancellaria Mawritiana*. *Sow.* Mozambique.  
 76 *Agaronia Steeria*. *Reeve.* Africa.  
 77 *Pedicularia Sicula*. *Sw.* Mediterranean.  
 78 *Harpa ventricosa*. Tonga.  
 79 " " *Lam.* Mozambique.  
 80 *Oliva porphyria*. Panama.  
 81 " New Caledonia.  
 82 " New Hebrides.  
 83 " " " "  
 84 " *erythrostoma*. " Indian Seas.  
 85 "  
 86 " Fiji Is.  
 87 *Subula maculata*. *Lin.*  
 88 " " " Mozambique.  
 89 *Terebra dimidiata*. " "  
 90 "  
 91 *Dolium perdix*. *Lin.* China.

## CONIDÆ.

- 92 *Conus Quercinus*. Sandwich Is.  
 93 „ *marmoreus*. *Gmel.* China.  
 94 „ *textile*. New Caledonia.  
 95 „  
 96 „  
 97 „ *imperialis*. New Caledonia.  
 98 *Lachesis minima*. *Forbes and Hanley.* British.  
 99 *Pleurotoma Babylonica*. *Lin.* China.

## VOLUTIDÆ.

- 100 *Voluta vespertilio*. *Lam.* Moluccas.  
 101 „ New Hebrides.  
 102 „ „ „  
 103 „ *zebra*. Moreton Bay.  
 104 „ *Deshayesi*. New Caledonia.  
 105 „  
 106 *Mitra episcopalius*. *D'arg.* S. Seas.  
 107 „ *episcopalia*. Fiji Is.  
 108 *Marginella glabella*. Mediterranean.  
 109 „  
 110 *Imbricaria (marmoratus conicus)*. *Chemn.* S. Seas.  
 111 *Cymba proboscidalis*. *Lin.* W. Africa.  
 112 *Melo diadema*.

## CYPRÆIDÆ.

- 113 *Cypræa tigris*. *Lin.* Mozambique.  
 114 „ *umbillicatus*. Tasmania.  
 115 „  
 116 „ *pantherina*. Red Sea.  
 117 „ New Hebrides.  
 118 „ *vitellus*. Moreton Bay.  
 119 „ *caput-serpentis*. Moreton Bay.  
 120 „ *Talpa*. Fijis.  
 121 „ *argus*. New Hebrides.  
 122 „ *Synx*. Ceylon.  
 123 „ *annulus*. Moreton Bay.  
 124 „  
 125 „  
 126 „

- 127 *Cyprea*  
 128 *Erato lævis*. *Donovan*. Britain.  
 129 *Trivia pedicularia*. West Indies.  
 130 *Ovulum volva*—"Volva," of Bolten. China.  
 131     ,,     *ovum*. *Lin.* Africa.

## NATICIDÆ.

- 132 *Natica mamilla*. S. Seas.  
 133     ,,     ,, New Caledonia.  
 134     ,,     ,, New Hebrides.  
 135     ,,     ,, New Caledonia.  
 136     ,,     ,, New Hebrides.  
 137     ,,     ,,     ,,  
 138 *Sigaretus concavus*. *Lam.* South America.  
 139 *Neverita Chemnitzii*. *Reeve*.  
 140 *Catinus zonalis*. *Quoy*. South Australia.  
 141 *Lamellaria perspicua*. *Forbes and Hanley*. Britain.

## PYRAMIDELLIDÆ.

- 142 *Pyramidella striata*. *Lam.* S. Seas.  
 143 *Chemnitzia-rufa*. *Forbes and Hanley*. Britain.  
 144 *Odostomia eulimoides*.     ,,     ,,     ,,  
 145 *Obeliscus marmoratus*. *Lam.* S. Seas.  
 146 *Eulima polita*. *Forbes and Hanley*. Britain.

## CERITHIADÆ.

- 147 *Cerithium vertagus*. S. Seas.  
 148     ,,     ,, New Caledonia.  
 149     ,,     ,, New Hebrides.  
 150     ,,     ,, Torres Straits.  
 151     ,,     ,, New Hebrides.  
 152     ,,     ,,  
 153     ,,     ,,  
 154 *Terebralia telescopium*. *Brug.* India.  
 155 *Aporrhais pes-pelcani*. *Lin.* Mediterranean.  
 156 *Struthiolaria straminea*. *Gmel.* Australia.  
 157 *Potamides sulcata*. Africa.  
 158     ,,     ,, Opara Island.  
 159 *Triphoris*. Sandwich Islands.

## MELANIADÆ.

- 160 Paludomus neritoides. *Reeve.* Ceylon.  
 161 Melanopsis prerosa. *Lin.* Palestine.  
 162 Tanalia loricatus. *Reeve.* Ceylon.  
 163 Melania hastata. Sandwich Islands.  
 164 Anculosa ampla. Alabama.  
 165 Amnicola ciliata. W. Africa.  
 166 Pirena atra. *Lin.* Ceylon.

## TURRITELLIDÆ.

- 167 Turritella terebra.  
 168       "  
 169 Sclaria pretiosa. *Lam.* China.  
 170 Cœcum trachea. *Forbes and Hanley.* Britain.  
 171 Siliquaria           Africa.  
 172 Vermetes lumbricalis. *Lin.* Australia.  
 173 Aclis unica. *F. and H.* Britain.

## LITORINIDÆ.

- 174 Solarium perspectivum. *Lin.* China.  
 175 Phorus Indicus. China.  
 176 Rissoa rufilabrum. *F. and H.* Britain.  
 177 Litiopa bombyx. *Kiener.* Mediterranean. (Gulf weed.)  
 178 Jeffreysia globularis. *F. and H.* Britain.  
 179 Rissoina tridentata. *Ad.* S. Seas.  
 180 Assiminea Grayana. *F. and H.* Britain.  
 181 Truncatella Montagui.       "       "       "  
 182 Tectarius bicolor. *Lam.* Australia.  
 183 Modulus teclum. *Gmel.*       "  
 184 Lacuna crassior. *F. and H.* Britain.  
 185 Risella plana. *Quoy.* Australia.  
 186 Litorina obesa. Sandwich Islands.  
 187       "  
 188       "  
 189 Skenea planorbis. *F. and H.* Britain.  
 190 Nematura deltæ. *Benson.* Ganges.

## PALUDINIDÆ.

- 191 Valvata cristata. *F. and H.* Britain.

- 192 *Ampullaria effusa*. Trinidad.  
 193 *Paludina Listeri*. *F. and H.* Britain.  
 194 *Bithinia tentaculata*. „ „ „  
 195 *Meladomus olivaceus*. Madagascar.  
 196 *Marisa cornu-arietis*. *Lin.* Trinidad.  
 197 *Amphibola avellana*. *Chemn.* New Zealand.

## NERITIDÆ.

- 198 *Neritina Zebra*. *Brug.* Tahiti.  
 199 *Nerita peloronta*. *Lin.* West Indies.  
 200 „ New Hebrides.  
 201 „ „ „  
 202 „ „ „  
 203 „ „ „  
 204 „ „ „  
 205 „ „ „  
 206 „ „ „  
 207 „ „ „  
 208 „ „ „  
 209 „ „ „  
 210 „ „ „  
 211 „ „ „  
 212 „ „ „  
 213 *Navicella tessellata*. Ceylon.  
 214 „ New Hebrides.

## TURBINIDÆ.

- 215 *Turbo variabilis*. Moluccas.  
 216 „ „ New Hebrides.  
 217 „ „ New Caledonia.  
 218 *Gibbulus fuxata*. Mediterranean.  
 219 „ New Hebrides.  
 220 *Clanculus Pharaonis*. *Lin.* Red Sea.  
 221 *Rotella vestiaria*. „ Australia.  
 222 *Phasienella australis*. *Gmel.* „  
 223 *Margarita undulatus*. Greenland.  
 224 *Delphinula laciniata*. *Lam.* China.  
 225 „ New Hebrides.  
 226 *Bankivia varians*. *Beck.* Australia.  
 227 *Cyclostrema pusilla*. *Jeffreys.* Britain.

- 228 *Elenchus Vellula.* *Dunker.* Australia.  
 229 *Imperator uranilla.* *Koch.* Bombay.  
 230       "                       New Hebrides.  
 231       "                       "       "  
 232 *Trochus niloticus.* *Lin.* China.  
 233       "                       New Hebrides.  
 234       "                       "       "  
 235       "                       "       "  
 236       "       *stella.* *Gmel.* New Hebrides.

## HALIOTIDÆ.

- 237 *Haliotis Japonica.* Japan.  
 238 *Ianthina communis.* *F. and H.* Britain.  
 239       "                       New Hebrides.  
 240       "                       "       "  
 241 *Stomatella imbricata.* *Lam.* Australia.  
 242 *Adeorbis subcarinata.* *F. and H.* Britain.  
 243 *Stomatia phymotis.* *Helbin.* Philippines.  
 244 *Gena striatula.* *Ad.* South Australia.

## FISSURELLIDÆ.

- 245 *Fissurella picta.* Falkland Islands.  
 246       "                       New Hebrides.  
 247 *Puncturella Noachina.* *Lin.* Britain.  
 248 *Propolidium caeca.* Greenland.  
 249 *Emarginata reticulata.* *Sow.* Britain.  
 250 *Parmophorus Australis.* *Bl.* Australia.

## CALYPTRÆIDÆ.

- 251 *Crepidula fornicata.* *Lin.* West Indies.  
 252 *Trochita radians.* *Lam.* Peru.  
 253 *Hipponyx conica.* *Schum.* S. Seas.  
 254 *Pileopsis Ungaricus.* *Lin.* Europe.  
 255 *Calyptra sinensis.* *F. and H.* Britain.  
 256 *Crucibulum rudis.* *Brod.* Mazatlan.

## PATELLIDÆ.

- 257 *Patella onyx.* Cape of Good Hope.  
 258       "                       New Hebrides.  
 259       "                       "       "  
 260       "                       "       "



- 261 *Acmea patina*. *Esch.* Paget Sound.  
 262 *Pilidium fulvum*. *F. and H.* Britain.  
 263 *Siphonaria denticularis*. *Quoy.*

## DENTALIADÆ.

- 264 *Dentalium entalis*. *F. and H.*

## CHITONIDÆ.

- 265 *Chiton magnificus*. South America.

## HELICIDÆ.

- 266 *Omalonyx unguis*. *D'ord.* Sandwich Islands.  
 267 *Succinea putris*. *Lin.* Britain.  
 268 *Polygira polygirata*. *Born.* Brazil.  
 269 *Helix namastoma*. *Lin.* Ceylon.  
 270 *Azeca tridens*. Britain.  
 271 *Zua lubrica*. *Müll.* Britain.  
 272 *Bulinus oblongus*, and egg. Trinidad.  
 273 *Plectostoma de Crepignii*. *Ad.* Borneo.  
 274 *Anastoma globulosa*. *Lam.* Brazil.  
 275 *Spiraxis leucozonias*. Jamaica.  
 276 *Glandina* Mexico.  
 277 *Hypselostoma tubiferum*. *Blanf.* India.  
 278 *Streptaxis contusa*. *Fer.* Africa.  
 279 *Odontostomus exeseus*. *Spix.* Brazil.  
 280 *Pupa chrysalis*. Cuba.  
 281 *Vertigo pygmea*. *F. and H.* Britain.  
 282 *Caracolla Zebuensis*. *Brod.* Philippines.  
 283 *Pfeifferia micans*. *Gray.* „  
 284 *Partula faba*. *Martyn.* Tahiti.  
 285 *Cylindrella rosea*. *Pfr.* Jamaica.  
 286 *Achatinella fulgens*. Honolulu.  
 287 *Balea fragilis*. *I. and H.* Britain.  
 288 *Blandinianum* Jamaica.  
 289 *Clausilia gracilis*. *Wood.* Jamaica.  
 290 *Megaspira elatior*. *Spix.* Brazil.  
 291 *Achatina Zebra*. *Lin.* Africa.  
 292 „ *acicula*. *F. and H.*  
 293 „ *virginica*. St. Domingo.

## LIMACIDÆ.

- 294 *Physopsis Africanus*. Africa.  
 295 *Physa* River Murray.  
 296 *Planorbis corneus*. *Lin.*  
 297 *Ancylus fluviatilis*. *Lister*. Britain.  
 298 *Limnea stagnalis*. *Lin.* „  
 299 *Testacella halitoidea*. *Fer.* „  
 300 *Chilina Bombeyana*. *Gray*. Peru.  
 301 *Amphipeplea Melbournensis*. River Murray, S. A.

## AURICULIDÆ.

- 302 *Auricula Mida*. Singapore.  
 303 *Pythea Lessoni*.  
 304 *Conovulus lutens*. *Quoy*. Erromanga.  
 305 *Melampus auris-felis*. South Australia.  
 306 *Otina otis*. *F. and H.* Britain.  
 307 *Pedipes* Sandwich Islands.

## CYCLOSTOMIDÆ.

- 308 *Diplommata pachecheilus*. *Benson*. India.  
 309 *Pupina Viscoci*. *Crosse*. Cochin China.  
 310 *Cyclostoma angustæ*. *Ad.* Jamaica.  
 311 *Carychium minimum*. *F. and H.* Britain.  
 312 *Proserpina nitida*. *Sow.* Jamaica.  
 313 *Trochatella Tankervillei*. *Gray*. Jamaica.  
 314 *Leptopoma serriatum*. *Reeve*. Borneo.  
 315 *Megalanastoma anastoma*. *Benson*. India.  
 316 *Choanopoma scabriculum*. Jamaica.  
 317 *Cyclotus semstriatus*. *Sow.* India.  
 318 *Stoastoma Tapponianum*. Jamaica.  
 319 *Helicina orchracea*. *Poey.* Cuba.  
 320 *Lucidella megastoma*. Jamaica.  
 321 *Cyclophorus Ceylanicus*. Ceylon.  
 322 *Cistula lugubris*. *Pfr.* Trinidad.  
 323 *Phegiostoma grande*. *Gray*. Philippines.  
 324 *Catlia lubrica*. *Sow.* Philippines.  
 325 *Otopoma clausum*. *Sow.* India.  
 326 *Pterocyclos hespidus*. *Pearson*. India.

## ACICULIDÆ.

- 227 *Geomelania minor*. Jamaica.

## TORNATELLIDÆ.

328 Tornatella fasciata. *F. and H.*

329 Ringicula auriculata. Madeira.

## BULLIDÆ.

330 Bulla ampulla. Moluccas.

331 „ New Hebrides.

332 „ West Indies.

333 Glauconella viridis. *Gray.* Sandwich Islands.334 Scaphander lignarius. *F. and H.* Britain.

335 Aplustre S. Seas.

336 Cylichna cylindracea. *F. and H.* Britain.

337 Aplysia Patersoni. Spain.

338 Philine scabra. *F. and H.* Britain.

## APLYSIADÆ.

339 Dolabella Rumphii. *Lam.* Philippines.

## PLEUROBRANCHIDÆ.

340 Umbrella Indica. *Lam.* India.

## FIROLIDÆ.

341 Carinaria cymbium. Mediterranean.

## ATLANTIDÆ.

342 Atlanta Gaudichaudi.

## HYALEIDÆ.

343 Creseis subulata. Oceanic.

344 Hyalea tridentata. *Gmel.* Mediterranean.

## TEREBRATULIDÆ.

345 Terebratula vitrea. Mediterranean.

346 Terebratulina Caput-serpentes. *F. and H.* Britain.347 Terebratella rubicunda. *Sow.* New Zealand.348 Megerlia truncata. *Lin. sp.* Mediterranean.349 Argiope cistellula. *F. and H.* Britain.350 Waldheimia Australis. *King.* Australia.

## RHYNCHONELLIDÆ.

351 Rhynchonella psittacea. Greenland.

## CRANIADÆ.

- 352 *Crania anomala*. *F. and H.* Britain.

## DISCINIDÆ.

- 353 *Discina lamellosa*. *Brod.* Australia.

## LINGULIDÆ.

- 354 *Lingula*  
 355 „ *anatina*. Australia.  
 356 „ *murphiana*. „

## OSTREIDÆ.

- 357 *Ostrea*  
 358 *Spondylus gædaropus*. *Lin.* Malta.  
 359 *Pecten pallium*. *Lin.* Moluccas.  
 360 „ New Caledonia.  
 361 „ *opercularis*. Britain.  
 362 „ New Caledonia.  
 363 *Pedum spondyloideum*. *Gmel.* Red Sea.  
 364 *Lima squamosa*. *Lam.* Moluccas.  
 365 *Placuna placenta*. *Lin.* China.  
 366 *Anomia* Australia.  
 367 *Plicatula cristata*. *Lam.* West Indies.

## AVICULIDÆ.

- 368 *Avicula* (?) China.  
 369 *Pinna bullata*.  
 369<sub>a</sub> „  
 370 *Meleagrina margaritifera*. *Lin.* Ceylon.  
 371 *Crenatula viridis*. *Lam.* China.  
 372 *Perna*  
 373 *Vulsella lingulata*. *Lin.* Red Sea.  
 374 *Malleus vulgaris*. *Lam.* China.

## MYTILIDÆ.

- 375 *Mytilus edulis*. *Lin.* Britain.  
 376 *Modiola*  
 377 *Crenella impacta*. New Holland.  
 378 *Lithodomus dactylus*. Australia.  
 379 *Modiolarea trapezina*. *Lam.* Falkland Islands.  
 380 *Dreissina polymorphos*. *F. and H.* Britain.

## ARCADÆ.

- 381 *Arca granosa*. *Lin.*  
 382 *Cucullæa concamerata*. China.  
 383 *Byssio-arca Noë*. *Lin.* Mediterranean.  
 384 *Pectunculus siculus*. Mediterranean.  
 385 *Yoldia lucida*. Sweden.  
 386 *Nucula nucleus*. *Lin.* Mediterranean.  
 387 *Solemya Australis*. *Lam.* South Australia.  
 388 *Leda pernula*. *Müll.* Sweden.

## TRIGONIADÆ.

- 389 *Trigonia pectinata*. *Lam.* Tasmania.

## UNIONIDÆ.

- 390 *Unio cicatricosa*. *Say.*  
 391 *Anodon cygneus*. *Lin.* Britain.  
 392 *Monocondylea Cumingii*. South America.  
 393 *Iridina exotica*. *Lam.* Senegal.  
 394 „ (*Pleiodon*) *ovata*. *Swainson.* Africa.  
 395 *Castalia ambigua*. *Lam.* South America.  
 396 *Batissa* Philippines.  
 397 *Hyria syrmatophora*. *Gronov.* South America.  
 398 *Ætheria semilunata*. *Law.* Senegal.

## CHAMIDÆ.

- 399 *Chamostrea albida*. *Lam.* New South Wales.

## TRIDACNIDÆ.

- 400 *Tridacna*  
 401 „ *squamosa*. *Lam.* India.  
 402 „ *gigas*. China (in the Hall).  
 403 *Hippopus*  
 404 „ *maculatus*. *Lam.* Singapore.

## CARDIADÆ.

- 405 *Cardium pseudo-lima*. Zanzibar.  
 406 „ New Caledonia.  
 407 „ New Hebrides.  
 408 „  
 409 *Hemicardium cardissa*. *Lin.* China.

## LUCINIDÆ.

- 410 Ungulina alba. Senegal.  
 411 Deplodonta rotundata. *F. and H.* Britain.  
 412 Lepton squamosum. " " "  
 413 Montacuta substriata. " " "  
 414 Lucina tigerina. West Indies.  
 415 Turtonia minuta. *F. and H.* Britain.  
 416 Kellia rubra. " " "  
 417 Galeomma Turtoni. " " "  
 418 Scintilla (Deshayes). Borneo.  
 419 Corbis fimbriata. *Lam.* Australia.  
 420 Cryptodon flexuosa. *F. and H.* Britain.

## CYCLADIDÆ.

- 421 Cyrena Ceylanica. Singapore.  
 422 Corbicula orientalis. *Lam.* Canton R.  
 423 Pisidium cinereum. *F. and H.* Britain.  
 424 Cyclas cornea. " " "

## CYPRINIDÆ.

- 425 Cypricardia Guinaca. *Chem.* Sandwich Islands.  
 426 Cardita bicolor.  
 427 Cyprina Islandica. *Lin.* Britain.  
 428 Astarte sulcata. *F. and H.* Britain.  
 429 Cyprinoides Dupontia. *Joannes.*  
 430 Circe æquivoca. *Reeve.* Australia.  
 431 " New Hebrides.  
 432 Isocardia moltkiana. *Chem.* China.  
 433 Crassatella decipiens. *Reeve.* Australia.

## VENERIDÆ.

- 434 Venus puerpera. *Lin.* Ceylon.  
 435 " New Caledonia.  
 436 " clione. France.  
 437 " " New Hebrides.  
 438 " New Caledonia.  
 439 "  
 440 Meroe. *Schum.*  
 441 Trigona radiata. *Sow.* Mazatlan.  
 442 Artemis Dunkeri. Mazatlan.

- 443 *Lucinopsis undata*. *F. and H.* Britain.  
 444 *Cytherea squalida*. *Sow.* St. Helena.  
 445 *Petricola rugosa*.  
 446 *Gauconya rugosa*. *Reeve.* Singapore.  
 447 *Tapes literata*. *Lin.* New Holland.  
 448 „ New Caledonia.  
 449 *Venerupis irus*. Mediterranean.

## MACTRIDÆ.

- 450 *Gnathodon cuneatus*. *Gray.*  
 451 *Mactra stultorum*. *F. and H.* Britain.  
 452 *Lutraria elliptica*. *F. and H.*

## TELLINIDÆ.

- 453 *Tellina* New Caledonia.  
 454 „ *tenuis*. Mediterranean.  
 455 „ *rugosa*. New Caledonia.  
 456 „ *virgata*. *Lin.* China.  
 457 *Ervilia nitens*. *Mont.* West Indies.  
 458 *Iphigenia altior*. South America.  
 459 *Scrobicularia piperata*. Britain.  
 460 *Sanguinolaria rugosa*. *Lam.* S. Seas.  
 461 *Psammobia vespertino*. *F. and H.* Britain.  
 462 *Donax scortum*. *Lin.*  
 463 *Galathea radiata*. *Lam.* W. Africa.  
 464 *Semele corrugata*. South America.  
 465 *Syndosmya alba*. *F. and H.* Britain.  
 466 *Gastrana fragilis*. Britain.  
 467 *Mesodesma striata*. *A. Adaw.* Australia.

## SOLENIIDÆ.

- 468 *Solen siliqua*. *Lin.* Britain.  
 469 „  
 470 *Ceratisolen legumen*. *Lin.* Britain.  
 471 *Solecurtus radiatus*. „ Moluccas.  
 472 *Novaculina Gangetica*. *Benson.* Ganges.

## MYACIDÆ.

- 473 *Mya truncata*. *Lin.* Britain.  
 474 *Corbula nucleus*. *F. and H.* Britain.  
 475 *Neara cuspidata*. „ „ „

- 476 *Potamomya* Australia.  
 477 *Glycimeris siliqua*. *Chem.* North America.  
 478 *Saxicava arctica*. *F. and H.* Britain.

## ANATINIDÆ.

- 479 *Thracia phaseolina*. *F. and H.* Britain.  
 480 *Pandora rostrata*.  
 481 *Anatina subrostrata*. "*Lam.*" Philippines.  
 482 *Lyonsia Norvegica*. *F. and H.* Britain.

## GASTROCHÆNIDÆ.

- 483 *Fistulana clava*. *Lam.* Java.  
 484 *Aspergillum Javanum*. *Lam.* Java.  
 485 *Gastrochana modiolina*. *F. and H.* Britain.

## PHOLADIDÆ.

- 486 *Teredo malleolus*. *F. and H.* Britain.  
 487 *Pholas parva*.  
 488     ,,             Brighton, " Britain. "

SHELLS of the United States of America, 160 species.  
 Presented by Colonel Jewett, Ph.D.

Collection of LAND AND FRESH WATER SHELLS from  
 Pacific Islands.



## V. BRITISH FOSSILS.

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Fossil organic remains illustrative of the Geological Formations in Britain; being a selection from the Collection of the late Dr. G. A. Mantell, F.R.S., in whose works several of the specimens in this Collection were originally figured.

A Catalogue of this Collection has not yet been completed, so that only the more prominent specimens are enumerated, commencing with the most recent formations.

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- 1 Specimens from shell beds now in course of formation at the mouth of the Thames, British Channel, and Barbadoes.
- 2 Calcareous incrustations, enclosing casts of leaves. Matlock, Derbyshire.
- 3 Fossil Nuts, from a Peat Bog; the kernels being replaced by Carbonate of Lime.
- 4 Bones and teeth of extinct forms of the Horse and Elephant, from the Elephant bed, and Coombe Rock, Brighton. (See "Wonders of Geology," Vol. I., page 114.)
- 5 Teeth and bones of Hyena, Bear, Rhinoceros, and other extinct animals, from Kirkdale Cave and Kent Caverns. Collected by the late Dr. Buckland.
- 6 Limestone, channelled by wind driven sand. Lycia.

### TERTIARY FORMATIONS.

- 7 Fossil Fish. Monte Bolca. Collected by the late Professor Silliman.
- 8 Fossil Leaves and Land Shells, from Eocene beds. Isle of Wight.

- 9 Eocene Fossils of the London Clay and Bognor series, among which is the specimen of *Cerithium melanoides*, figured in "Fossils of the South Downs," Pl. XVII. ; also specimens of *Nautilus truncatus*, obtained in the Cutting for Highgate Archway. In the same case is a bone of *Anoplotherium*, from the Paris Basin, which was presented to Mr. Mantell, by Baron Cuvier.

#### CRETACEOUS FORMATION.

- 10 Fossil Sponges, in chalk and flint.  
 11 Choanites, in flints.  
 12 Fossil Fish, from the Chalk, among which is the unique specimen of *Beryx*, figured in "Dixon's Geology of Sussex."  
 13 Palatal Teeth, Scales, &c., of Fishes.  
 14 Marsupites. (See "Medals of Creation," Vol. I., page 319.)  
 15 Echinodermata, from the Chalk, including two specimens figured in "Geology of Sussex," Pl. VII.  
 16 Chalk Mollusca, among which are the specimens of *Pecten* figured in "Fossils of the South Downs," Pl. XXV.  
 17 Fossils from the Gault and Greensand, some of the specimens being those figured in the "Geology of South Downs," Pl. XIX ; also, Fossil Sponges from Faringdon, figured in "Wonders of Geology," Pl. 140.

#### WEALDEN FORMATION.

This formation, famous for its gigantic reptiles first discovered by Dr. Mantell, is represented by:—

- 18 Transverse sections of the shaft of the femur and of the tibia of *Iguanodon* ; Casts of the teeth, horn, claws, and three teeth of the *Iguanodon*, two of which are the specimens figured in the original Paper in the "Philosophical Transactions," announcing the discovery in 1825, and one being the first specimen submitted to

Cuvier, by which the Reptilian character of the fossil remains first suggested by Dr. Mantell, was confirmed. With these is placed the skull of a recent Iguana that was sent by Cuvier for comparison, and which is also figured in the same Papers.

19 *Lepidotus*; *Unio Valdensis* and *Gaulteri*; the *Paludina* conspicuous in the Sussex Marble; insects; plants and other fossils characteristic of this formation.

20 OOLITIC AND LIASSIC FORMATIONS are represented by fossils from Bradford Clay, Kelloway Rock, Portland Oolite, Oxford Clay, and Kimmeridge Clay; among which are the following genera:—*Ammonites*, *Belemnites*, *Terebratulæ*, *Isocardia*, *Perna*, *Nucula*, *Gryphæa*, *Lucina*, *Astarte*, *Turritella*, *Terebellaria*, *Pholadomya*, *Cardium*, *Trigonia*, *Rostellaria*, *Ostrea*, *Pleurotomaria*, *Modiola*, *Trochus*, *Serpula*, *Apocrinites*, *Pentacrinites*, *Cidaris*, *Hemicidaris*, *Nuculites*.

21 PALÆOZOIC FORMATIONS are represented in the collection by a few forms, the most interesting being:—*Osmunda pseudo-regalis*, *Neuropteris*, *Caulerpites pyriformis*, *Madrepore* and *Encrinural* Limestone, *Spirifer*, *Strophomena*, *Leptæna*, *Euomphalus*, *Pentamerus*, *Clymene*, *Goniatites*, *Palæoniscus*.

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## VI. AUSTRALIAN MINERALS AND FOSSILS.

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### MINERALS, ETC.

- 1 Quartz Reef, with Chloro-bromide of Silver and Gold. St. Arnaud, Victoria.
- 2 Sulphur Quartz, with Gold. St. Arnaud, Victoria.
- 3 Quartz Reef. Goodmans Creek, Victoria.
- 4 Calcined Quartz. St. Arnaud, Victoria.
- 5 Black Mullock, with portion of Elvan Dyke. St. Arnaud, Victoria.
- 6       "               "               "               "               "
- 7       "               "               "               "               "
- 8 Greenstone Dyke. King George's Sound, Western Australia.
- 9 Porphyry, through which No. 8 passes. King George's Sound, Western Australia.
- 10 Conglomerate. Bacchus, Victoria.
- 11 to 15 Ironstone Nodules, with Dicotyledonous leaves. (Pliocene Tertiary.) Pauwau Creek, Victoria.
- 16 Ironstone, with shells. Junction of Miocene and Pliocene Tertiary. Brighton Beach, Victoria.
- 17 Ironstone, in junction with Basalt and Pliocene strata. Tortoise Head, Victoria.
- 18 Upper Bed of Tertiary Sands. Pauwau Creek, Victoria.
- 19 Syenite. Melbourne.
- 20 Portion of the Stool of the Great Victorian Meteorite. Victoria.
- 21 Rock, from Dyke which pierces Lower Silurian, but not the Overlying Conglomerate. Victoria.

- 22 Fossil Wood. Carbonaceous Rocks. Griffiths Point, Victoria.
- 23 Fossil Wood. Carbonaceous Rocks. Griffiths Point, Victoria.
- 24 Siliceous Rock, with plant remains. (Tertiary.) Victoria.
- 25 Stream Tin. The Ovens, Victoria.

FOSSILS.

- 26 to 50 Fossil Shells. Eocene Tertiary. Snapper Point, Victoria.
- 51 to 63 Graptolites—Auriferous Slates. Goodmans Creek, Victoria.
- 64 Fossil Shark's Teeth and Bone. Cliffs at Mordialloc, twenty miles from Melbourne.
- 65 Inoceramus. (Collected by Rev. W. B. Clarke, in 1843.) Muree, Hunter River, New South Wales.

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VII. TASMANIA.

FOSSILS.

- 1 to 100 Fossil Shells, &c. Tasmania.
- 101 to 120 Fossil Plant Impressions. Tasmania.

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VIII. MAMMALS AND BIRDS OF AUSTRALIA.

I. MAMMALS.

Macropus major. Kangaroo.  
 Halmaturus ualabatus. Wallaby.  
 Dasyurus viverrinus. Native Cat.

*Petaurista taguanoides*. Flying Opossum.

*Hydromys leucogaster*. Water Rat.

*Echidna hystrix*. Hedgehog.

*Petaurus breviceps*. Flying Squirrel.

*Canis Dingo*. Dingo, or Native Dog.

## 2. BIRDS.

The Collection comprises 255 specimens, many of which are not yet mounted. A full Catalogue of the whole will be published in the Supplement.

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## IX. BIRDS OF TASMANIA.

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Consisting of 30 specimens, not set up.

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## X. BIRDS OF SOUTH AMERICA AND INDIA.

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Consisting of 45 specimens, not set up.

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## NEW ZEALAND COLLECTIONS.

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### XI. MAMMALS.

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Native Dog.	Kuri.	
" Rat.	Kiore.	
" Bat.	Pekapeka.	( <i>Scotophilus tuberculatus</i> .)
" "	"	( <i>Mystacina tuberculata</i> .)

#### SEALS.

- 1 *Stenorhynchus leptonyx*. One skull.
- 2 *Arctocephalus leonina*. Stuffed skin. Common  
Fur Seal of the West Coast.

#### CETACEA.

- 1 *Balæna marginata*. *Gray*. Skull and baleen.
  - 2 *Globiocephalus macrorhynchus*. *Gray*. Black Fish.  
Two skulls—one in longitudinal section.
  - 3 *Berardius Arnuxii*. *Duvernoy*. Skull and lower  
jaw, cervical vertebra, scapula, hyoid, paddles,  
and pelvic bones, on one individual. Also, a  
single tooth of another individual.
  - 4 *Lagenorhynchus clanculus*. Complete skeleton.
  - 5 Skulls, vertebræ, and other bones of various species  
of Whales, Porpoises, &c., undetermined.
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## XII. BIRDS.

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Many of the specimens have not yet been mounted for exhibition in the Museum, but in the following complete list of all New Zealand Birds, the names of those which are *desiderata* are printed in italics. Where the species is of doubtful existence in New Zealand, a note of interrogation is prefixed, and an asterisk signifies that the nest or eggs of the bird is in the Collection.

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- 1 Falco Novæ Zelandiæ. *Gml.* Falcon. Karearea.
- \* 2 Circus assimilis. *Jard.* Harrier. Kahu.
- 3 Athenæ Novæ Zelandiæ. *Gml.* Morepork. Ruru.
- 4 Athenæ albifacies. *Gray.*
- ? 5 Scops Novæ Zelandiæ. *Bp.*
- ? 6 Strix delicatula. *Gould.*
- \* 7 Halcyon vagans. *Gray.* Kingfisher. Kotare.
- 8 Heteralocha Gouldi. *Gray.* Huia.
- ? 9 Anthochara Bulleri. *Finsch.*
- \* 10 Prosthemadera Novæ Zelandiæ. *Gml.* Parson Bird. Tui.
- \* 11 Anthornis melanura. *Sparrm.* Bell Bird. Kokomako.
- 12 Anthornis melanocephala. *Gray.*
- ? 13     "    auriocular. *Buller.*
- 14     "    ruficeps. *Pelzeln.*
- \* 15 Pogonornis cincta. *Dubus.* Hihipaka.
- 16 Xenicus longipes. *Gml.* Wren.
- 17     "    Stokesii. *Gray.* Wren. Matuhitui.
- 18     "    Haastii. *Buller.* = *Gilviventris.* *Pelz.* Mountain Wren.
- \* 19 Acanthisitta chloris. *Sparrm.* Titipounamu.
- \* 20 Mohoua ochrocephala. *Gml.* Popokatea.
- \* 21     "    albicilla. *Less.*



- 22 *Sphenæacus punctatus*. *Quoy and Gaim.* Grass bird. Mata.
- ? 23 *Sphenæacus fulvus*. *Gray.*
- 24 *Sphenæacus rufescens*. *Buller.*
- 25 *Gerygone igata*. *Quoy and Gaim.* Black cap.
- 26 *Gerygone flaviventris*. *Gray.* Piripiri.
- ? 27 *Gerygone albifrontata*. *Gray.*
- \* 28 *Gerygone assimilis*. *Buller.*
- 29 *Certhiparus Novæ Zelandiæ*. *Gml.* Reed Wren. Toetoe.
- ? 30 *Certhiparus maculicaudus*. *Gray.*
- \* 31 *Petroica macrocephala*. *Gml.* Robin.
- 32 *Petroica Dieffenbachi*. *Gray.* Ngirungiru.
- \* 33 *Petroica longipes*. *Less and Garn.*
- \* 34 *Petroica albifrons*. *Gml.* Totoara.
- \* 35 *Anthus Novæ Zelandiæ*. *Gml.* Lark. Pihoihoi.
- \* 36 *Zosterops lateralis*. *Lath.* Blight Bird. Tauhou.
- 37 *Turnagra crassirostris*. *Gml.* Thrush. Piopio.
- 38 *Turnagra Hectori*. *Buller.* = *Octagon tanagra*. *Schly.*
- \* 39 *Rhipidura flabellifera*. *Gml.* Fantail. Piwakawaka.
- \* 40 *Rhipidura fuliginosa*. *Sparrm.* Tiwaiwaka.
- ? 41 *Rhipidura trestis*. *Hombr.*
- 42 *Callæas cenerea*. *Grul.* Crow.
- 43 *Callæas Wilsoni*. *Gray.* Kokako.
- ? 44 *Callæas olivascens*. *Pelzeln.*
- 45 *Creadion carunculatus*. *Gml.* Saddle Bird. Tieke.
- 46 *Creadion cinereus*. *Buller.* Tiraweke.
- 47 *Hylochelidon nigricans*. *Buller.*
- 48 *Platycercus Novæ Zelandiæ*. *Sparrm.* Parroquet, crimson top. Powhaitere.
- 49 *Platycercus auriceps*. *Kuhl.* Parroquet, yellow top. Kakariki.
- 50 *Platycercus alpinus*. *Buller.*
- \* 51 *Nestor meridionalis*. *Gml.* Kaka.
- ? 52 *Nestor Esslingi*. *Sou.*
- 53 *Nestor notabilis*. *Gould.* Mountain Parrot. Kea.
- 54 *Nestor superbus*. *Buller.*
- 55 *Nestor occidentalis*. *Buller.*

- 56 *Strigops habroptilus*. *Gray*. Ground Parrot.  
Kakapo.
- ? 57 *Strigops Greyi*. *Gray*.
- 58 *Eudynamys taitensis*. Long tailed Cuckoo.  
Koheperoa.
- 59 *Chrysococcyx lucidus*. *Gml.* Shiny Cuckoo.  
Pipiwararoa.
- 60 *Carpophaga Novæ Zelandiæ*. *Gml.* Pigeon.  
Kereru.
- \* 61 *Coturnix Novæ Zelandiæ*. *Quoy*. Quail. Koreka.
- \* 62 *Apteryx australis*. *Shaw*. Great Kiwi. Tokoeke.
- \* 63 *Apteryx Oweni*. *Gould*. Grey Kiwi.
- \* 64 *Apteryx Mantelli*. *Bartl.* Common brown Kiwi.
- ? 65 *Apteryx maxima*. *Verr.*
- \* 66 *Charadrius bicinctus*. Tuturiwhatu.
- 67 *Charadrius fulvus*. *Grul.*
- \* 68 *Charadrius obscurus*. *Gml.* Dottrel.
- 69 *Strepsilas interpres*.
- 70 *Thinornis Novæ Zelandiæ*. *Gml.*
- 71 *Thinornis Rossi*. *Gray*.
- \* 72 *Anarhynchus frontalis*. *Quoy*. Scissor bill.
- \* 73 *Hæmatopus longirostris*. *Vieill.* Red bill. Torea.
- 74 *Hæmatopus unicolor*. *Forst.*
- 75 *Ardea flavirostris*. *Wagl.* White Crane. Kotuku.
- 76 *Ardea matook* = *sacra*. Blue Crane. Matuku.
- 77 *Ardea Novæ Hollandiæ*.
- 78 *Botaurus poicilopterus*. *Wagl.* Bittern. Matu-  
kuhurepo.
- 79 *Botaurus minuta*, n. sp. *Haast*.
- ? 80 *Nycticorax Caledonicus*. *Gml.* Night Heron,  
of Australia.
- \* 81 *Himantopus Novæ Zelandiæ*. *Gould*. Stilt.  
Poaka.
- 82 *Himantopus leucocephalus*.
- \* 83 *Himantopus melas*.
- 84 *Limosa uropygialis*. *Gould*. Grey Stilt. Kuaka.
- 85 *Scolopax Aucklandica*. *Gray*.
- 86 *Recurvirostra rubricollis*. *Temm.* Avocet.
- 87 *Rallus pectoralis*. *Less.* = *assimilis*. Striped  
Land Rail. Mohopereru.

- 88 *Rallus Dieffenbachi*. Gray. Moho, of Chatham Islands.
- 89 *Rallus Featherstoni*. Buller.
- 90 *Ortygometra affinis*. Gray. Swamp Rail. Koitareki.
- 91 *Ortygometra tabuensis*. Gml. Black Rail. Putoto.
- \* 92 *Ocydromus australis*. Sparrm. Wood Hen. Weka.
- 93 *Ocydromus Earli*. Gray. North Island Weka.
- 94 *Ocydromus brachypterus*. Lafr.
- 95 *Ocydromus nigricans*. Buller. Dark Wood Hen. Mohopango.
- 96 *Gallinago pusilla*. Of Chatham Islands.
- 97 *Notornis Mantelli*. Owen. Takahea.
- \* 98 *Porphyrio melanotus*. Temm. Swamp Hen. Pukeko.
- \* 99 *Casarca variegata*. Gml. Paradise Duck. Putangetangi.
- \* 100 *Anas superciliosa*. Gml. Grey Duck. Parera.
- 101 *Anas chlorotis*. Gray. Teal. Pateke.
- 102 *Anas gibberifrons*. Mul. = *gracilis*. Buller.
- 103 *Spatula variegata*. Gould. Spoon bill. Tete.
- 104 *Fuligula Novæ Zelandiæ*. Gml. Widgeon. Papango.
- 105 *Nesonetta Aucklandica*. Gray. Red Teal. Metawetanga.
- 106 *Nyroca australis*. Gould. White winged Duck. Karakahia.
- \* 107 *Hymenolaimus melacorhynchus*. Gml. Blue Mountain Duck. Whio.
- \* 108 *Podiceps rufipectus*. Gray. Little Grebe. Totokipio.
- 109 *Podiceps cristatus*. Linn. = *Hectori*. Buller. Crested Grebe.
- ? 110 *Aptenodytes Pennanti*. Gray.
- 111 *Aptenodytes pachyrhynchus*. Gray. Great Penguin. Tawaki.
- 112 *Aptenodytes antipodes*. Hombr. Common Penguin. Hoiho.
- \* 113 *Spheniscus minor*. Forst. Blue Penguin Korora.

- 114 *Spheniscus undina*. Gray.
- 115 *Pelecanoides urinatrix*. Gml.
- 116 *Puffinus assimilis*. Gould. Mutton Bird. Titi.
- 117 *Procellaria gigantea*. Gml.
- 118 *Procellaria æquinoctialis*. Linn.
- 119 *Procellaria Parkinsoni*. Gray.
- 120 *Procellaria glacialis*. Smith.
- 121 *Procellaria Capensis*. Gml. Cape Pigeon.
- 122 *Procellaria Cooki*. Gray.
- 123 *Procellaria gavia*. Forst.
- 124 *Procellaria ariel*. Gould.
- 125 *Procellaria cerulea*. Gml.
- 126 *Procellaria incerta*. Schl.
- 127 *Procellaria mollis*. Gould.
- 128 *Æstrelata Gouldii*, n. sp. Hutton.
- 129 *Prion vittatus*. Gml.
- 130 *Diomedea exulans*. Linn. Albatros. Toroa.
- 131 *Diomedea fuliginosa*. Gml.
- 132 *Diomedea chlororhyncha*. Gml.
- 133 *Diomedea melanophrys*. Boie.
- 134 *Lestris catarractes*. Ill. Sea Hen.
- 135 *Larus pacificus*. Lath. Gull. Karoro.
- \*136 *Larus dominicanus*. Licht.
- \*137 *Larus scopulinus*. Forst. Tarapunga.
- 138 *Larus melanorhynchus*. Buller.
- \*139 *Sterna caspia*. Pull. Tern. Tara.
- \*140 *Sterna longipennis*. Nordm.
- 141 *Sterna minuta*. Linn. = *S. neris*. Gould.
- \*142 *Sterna antarctica*.
- 143 *Hydrochelidon hybrida*. Pall.
- 144 *Graculus carbo*. Linn. Shag. Kawau.
- 145 *Graculus cirrhatu*. Gml.
- 146 *Graculus melanoleucus*. Vieill.
- 147 *Graculus varius*. Gml.
- 148 *Graculus punctatus*. Sparrm.
- 149 *Graculus brevirostris*. Gould.
- 150 *Graculus chalconotus*. Gray.
- 151 *Graculus sulcirostris*. Brandt.
- 152 *Dysporus serrator*. Banks. Gannet. Takapu.
- 153 *Fregata aquila*. Linn. Frigate Bird.

### XIII. REPTILES.

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- Leiopelma Hochstetteri. Frog. Coromandel.  
Hatteria punctata. Tuatara. Gray. Fringed Lizard.  
East Cape.  
Tiliqua striata. Buller. Ground Lizard.  
Tiliqua ornata. Gray. Mokomoko.  
Tiliqua Zelandica. Gray.  
Tiliqua variegata. Buller.  
Tiliqua, sp.  
Naultinus Grayii. Bell. Kakariki. Green Lizard.  
Naultinus punctatus. Gray. Spotted Green Lizard.  
Naultinus pacificus. Gray. Brown Tree Lizard.  
Ngararapapa.  
Naultinus sulphureus. Buller.  
Naultinus elegans. Gray. Orange spotted Lizard.  
Naultinus granulatus. Gray.

## XIV. FISHES.

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In the following provisional list, the arrangement adopted in the list of New Zealand Fishes in Dieffenbach's work,\* Vol II., p. 206, has been adhered to, but in all cases where the species has been identified with one described in Dr. Günther's Catalogue† of Fishes, the nomenclature has been modified accordingly.

All species not represented in the Museum Collection, either by specimens or drawings, are distinguished by an asterisk, and the letter D or G to indicate which of the above works is the authority for the occurrence of that particular Fish in New Zealand. Obvious synonyms have been rejected.

The number of species given in the list is 138, of which 105 are in the Collection. Of these, 90 species belong to the Acanthopterygia, while in Dr. Günther's Catalogue only 61 species belonging to that order are mentioned as having been found in the New Zealand seas. As Dieffenbach's List enumerates 92 species, and Günther mentions upwards of 250 species as occurring on the Australian and Tasmanian coasts, it may be presumed that the number of species will be still further increased.

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### I.—CARTILAGINOUS.

#### CYCLOSTOMATA. *Suckers.*

- 1 *Amphioxus lanceolatus*. Lancelet. Poverty Bay.
- 2 *Myxine glutinosa*. Hag. Common.
- 3 *Hiptatrema dombeyii*. Lamprey. In rivers.

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\* "Dieffenbach's New Zealand," 2 Vols. 1843.

† "Catalogue of the Acanthopterygian Fishes in the British Museum," Vols. I. to VII. 8vo. 1859—68. See also for figures and description of Fishes of New Zealand, "Richardson's Ichthyology of the Voyage of H. M. S. S. *Erebus* and *Terror*." 4to. 1846.

SELACHIA. *Rays and Sharks.*

- 1 *Myliobatis Nieuhofii*. Eagle Ray.
- 2 *Tæniura lymma*. Stingaree. Roha. Common.
- 3 *Raia nasut*. Skate. Common.
- \* 4 *Trigonorhina fasciata*. Hen and Chickens. (D.)
- 5 *Rhinobatus Banksii*. Horned Ray. East Coast.
- 6 *Torpedo marmorata*. (?) Electric Ray. East Cape.
- \* 7 *Acanthias maculatus*. Spinned Dog Fish. (D.)
- 8 *Carcharias mao*. Great Shark.
- 9 *Carcharias melanopterus*. Black Shark. Reremai.
- 10 *Scymnus*, sp. Tiger Shark. Mako.
- 11 *Galeus*, sp. (?) Tope. Koinga. Dusky Bay.
- \* 12 *Zygæna*, sp. (?) Hammer head. Mangopare.
- 13 *Alopias vulpes*. Sea Fox, or Thresher. Nelson.
- 14 *Scyllium lima*. Dog Fish. Common.

*Sturionæ.*

- 1 *Callorhynchus antarcticus*. Elephant Fish. Common

## II.—BONY FISHES.

PLECTOGNATHI. *Soldered jaws.*

- 1 *Monocanthus rudis*. File Fish. Common.
- 2 *Tetraodon Hamiltoni*. Globe Fish. Dunedin Harbour.
- 3 *Diodon*, sp. (?) Spiny Globe Fish. East Coast.
- 4 *Orthogoriscus*, sp. (?) Sun Fish. East Coast.
- 5 *Ostracion quadricornis*. Trunk Fish.

LOPHIOBRANCHIATA. *Tufted gills.*

- 1 *Hippocampus abdominalis*. Wellington Harbour.
- 2 *Hippocampus brivirostris*. Sea Horse. Common.
- 3 *Syngnathus hymenolamus*. Pipe Fish. Wellington Harbour.
- 4 *Syngnathus*, sp. Wellington Harbour.

MALACOPTERYGIA. *Soft fins.**Apoda*—no ventral fins.

- 1 *Genypterus blacoides*. Ekoka. Hutt River.
- 2 *Ophisurus Novæ Zelandiæ*. Serpent eel. Poverty B.
- 3 *Anguilla australis*. Common Eel. Tuna.
- \* 4 *Anguilla Dieffenbachi*. (D.)
- 5 *Congrus habenatus*. Conger Eel. Cook's Straits.

*Subbrachiata.* Ventral below pectoral fins.

*Cyclopteridæ.*

- 1 *Tracheloclusmus pumulatus.* Lump Fish. Wellington Harbour.
- \*2 *Diplocrepis pumiceous.* (G.)
- \*3 *Echeneis nancrates.* Remora. (D.)

*Pleuronictidæ.* Flat Fish.

- \*1 *Rhombus plebius.* (D.)
- 2 *Rhombosolia tapirina.* Wellington Harbour.
- 3 *Rhombosolia monopus.* Patike. Flounder. Common.
- \*4 *Brachypleura Novæ Zelandiæ.* (G.)
- 5 *Peltorhamphus Novæ Zelandiæ.* Sole. Wellington Harbour.

*Macrinridæ.*

- 1 *Coryphænoides Novæ Zelandiæ, n. sp.* Welling. H.

*Gadidæ.* Cod Fishes.

- 1 *Lotella rhacinus.* Ling. Ahruru. Cook's Straits.
- 2 *Lotella bachus.* Haddock. Dusky Bay.
- 3 *Pseudophycis briviuscula.* Red Cod. Wellington Harbour.

*Gadopsidæ.*

- 1 *Gadopsis marmoratus.* Wellington Harbour.

*Abdominales.* Ventral behind pectoral fins.

*Clupeoidiæ.* Herrings.

- \*1 *Clupea sagax.* Herring. East Cape. (G.)
- \*2 *Chanos salmonea.* (G.)
- \*3 *Engraulis antipodum.* Anchovy. (G.)

*Salmonidæ.*

- 1 *Scopelus, sp.* Argentine. Milford Sound. 1863.
- 2 *Retropinna Richardsonii.* Smelt. Common.
- 3 *Retropinna osmeroides, n. sp.*
- 4 *Coregonus (?) sp.* Grayling. Hutt River.

*Esosidæ.* Pike Family.

- 1 *Exocetus evoltas.* Flying Fish. Bay of Islands.



- \*2 *Exocetus subpellucens*. (D.)
- 3 *Belone*, sp. Gar Fish. Wellington Harbour.
- \*4 *Saris scombroides*. Heia. Saury Pike. (D.)
- 5 *Hemiramphus intermedius*. Half beak. Wellington Harbour.
- \*6 *Scombrosox Forsteri*. (G.)
- \*7 *Arranphus scleropus*. (G.)
- 8 *Galaxias fasciatus*. Kokopu. Common.
- 9 *Galaxias alepidotus*. Cook's Rock Trout. Hipara.
- 10 *Galaxias*, sp. Avon. In young state is New Zealand Whitebait.
- 11 *Galaxias*, sp. Taupo Lake.
- 12 *Galaxias brevipinnis*. Waikato.
- 13 *Galaxias truttaceus*. Chatham Islands.
- 14 *Neochana apoda*. Mud Fish. Westland.

*Cyprinoideæ.*

- 1 *Gonorhyncus Greyi*. Sand Eel. Wellington Harbour (?).

*ACANTHOPTERYGII. Spine fins.**Labroidæ.*

- 1 *Centriscus humerosus*. Cook's Straits.
- \*2 *Labris pæcilopleura*. Wrasse. (D.)
- 3 *Labriethys celidota*. Wellington Harbour.
- 4 *Labriethys rubiginosus*. Wellington Harbour.
- \*5 *Labriethys prasiophthalmus*. (D.)
- 6 *Coriadax pullus*. Marare. Butter Fish.
- \*7 *Odax vittatus*. (D.)

*Zophiadæ.*

- \*1 *Dascyllus arnanus*. (G.)

*Gobiadæ.*

- 1 *Gobius lentiginosus*. Dusky Bay.
- \*2 *Gobius amiciensis*. (G.)
- \*3 *Acanthoclinus littoreus*. Wellington Harbour.
- \*4 *Christiceps australis*. Rivers. (D.)
- 5 *Tripterygion nigripinne*. Streams.
- 6 *Tripterygion varium*. Kokopu. Streams.
- 7 *Tripterygion Forsteri*. Hetaroa. Dusky Bay.

- \*8 *Tripterygion capito*. (D.)
- \*9 *Tripterygion medium*. (G.)
- \*10 *Tripterygion fenestratum*. (G.)
- 11 *Eleotris gobioides*. Hutt.
- \*12 *Eleotris basalis*. (D.)
- 13 *Eleotris radiata*. Taupo Lake.
- 14 *Hœmerocætes acanthorhynchus*. Kokohu. Wellington Harbour.

*Mugiloidæ.*

- 1 *Mugil argenteus*. Kanae. Silver Mullet. Auckland.
- 2 *Agonostoma diemensis*. Wellington Harbour.
- 3 *Agonostoma Forsteri*. Herring. Wellington Harbour.
- \*4 *Athirina nigricans*. Bay of Islands. (Rich.)

*Siganoidæ.*

- 1 *Acanthurus triostigus*. Leather-jacket. Wellington Harbour.

*Cepoladæ.*

- 1 *Regalicus Banksii*. Oar Fish. Nelson.
- 2 *Lepidopus caudatus*. Frost Fish. Common.

*Scombridæ.*

- 1 *Zeus faber*. Dory. East Coast.
- \*2 *Cyttus australis*. (G.)
- 3 *Gasterochisma melampus*. Butterfly Fish. Wellington Harbour.
- 4 *Caranx Georgianus*. Mackerel.
- \*5 *Caranx sinus-obscuri*. (D.)
- \*6 *Caranx platinoides*. (D.)
- 7 *Caranx gallus*, var. Saltwater Creek, Canterbury.
- 8 *Seriola cultrata*. Wellington Harbour.
- 9 *Seriola gigas*. Tunny. Wellington Harbour.
- 10 *Trachurus trachurus*. Horse Mackerel. Wellington Harbour.
- \*11 *Trachurus clupecides*. (D.)
- \*12 *Chorinemus lysan*. (D.)
- 13 *Nanerates ductor*. Pilot Fish. Dusky Bay.
- 14 *Histiophorus indica*. Sword Fish. Cook's Straits.
- 15 *Thyrsites Solandri*. Barracoota. Common.

- 16 *Thyrssites atun*. Maku. Waikanae. Rare.
- 17 *Neptomenus brama*. Warehou. Bream. Wellington Harbour.

*Sparidae.*

- 1 *Pagrus unicolor*. Snapper. Wellington Harbour.

*Sciaenidae.*

- 1 *Latris ciliaris*. Moke. Wellington Harbour.
- 2 *Latris lineata*. Yellow tail. Auckland.
- 3 *Latris salmonea*. Trumpeter. Kolikohi. Dusky Bay.
- 4 *Cheilodactylus aspersus*. Tarakihi. Wellington Harbour.
- 5 *Cheilodactylus carponemus*. (G.)
- 6 *Erithritchthys nitidus*. Mouth of Avon River, Canterbury.

*Trigladae.*

- 1 *Sebastes percoides*. Rock Cod. Puhuiakarou.
- 2 *Scorpaena cruenta*. Wellington Harbour.
- \*3 *Scorpaena plebeia*. (D.)
- \*4 *Scorpaena cardinalis*. (D.)
- \*5 *Scorpaena militaris*. (D.)
- 6 *Notothemia cornucola*. Wellington Harbour.
- 7 *Notothemia coriiceps*. Wellington Harbour.
- 8 *Trigla kumu*. Gurnard. Kumu.
- 9 *Agriopus leucopæcilus*. Wellington Harbour.
- 10 *Prosopodasys cottoides*. Enuwhitaro.

*Percoideae.*

- 1 *Upenichthys porosus*. Rivers.
- 2 *Upenoides Vlamingii*. Wellington Harbour.
- 3 *Anema monopterygium*. Pete. Wellington Harb.
- \*4 *Haplodactylus meandratus*. (D.)
- 5 *Arripis salar*. Kakawai. Wellington Harbour.
- 6 *Arripis mulloides*. Wellington Harbour.
- \*7 *Polyprion cerueum*. Wreck Fish. (D.)
- \*8 *Seranus lepidopterus*. (D.)
- 9 *Oligorus gigas*. Hapuka. Rocky Coasts.

*Berycidae.*

- \*1 *Trachichthys elongatus*. Barrier Island. (G.)

## XV. RECENT MOLLUSCA.

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The Shells in this Collection are arranged according to the system of classification adopted in "Woodward's Manual,"—(*Weale's Series*, 1866, price 5s. 6d.)

The Mollusca of the New Zealand coasts belong to the Australo-Zelandic Province, which includes New Zealand, the Chatham Islands, Tasmania, and Extra-tropical Australia from Sandy Cape on the east, to the Swan River.

In the Collection, several of the species found in the other sub-divisions of the above province, but not in New Zealand, have been placed for comparison, but they are distinguished by the colouring of the mounting, and in the Catalogue thus (x).

A blank space opposite the name of a Shell mentioned in published lists, indicates the fact that it is not as yet represented in the Collection; and where the species is of doubtful occurrence in New Zealand, an asterisk is prefixed, as in Dr. Gray's List of New Zealand Shells, given in Vol. II. of "Dieffenbach's New Zealand,"—Murray. 1843.

The specific names have been determined by reference to that work, as well as to those mentioned in the following list, and where the species has not been recognized it is merely distinguished by a letter:—

"An Account of New Zealand." Rev. W. Yates.  
2nd Ed. London: Seeley and Burnside. 1835.

"Te Ika a Maui." Rev. R. Taylor. London:  
Wertheim and Macintosh. 1855.

"Manuel de Malacologie." Par H. M. Ducrotay  
De Blainville. Paris: Levraut. 1825.

"Voyage de l'Astrolabe." Tome second—deuxième  
partie. Paris: Tastu. 1833.

- "Illustrations of the Recent Conchology of Great Britain and Ireland." Captain T. Brown. London: Smith, Elder, and Co. 1844.
- "The Conchologist's Nomenclator." Catlow and Reeve. London: Reeve Bros. 1845.
- "Catalogue Zool. Collection Brit. Mus." Gray and others. London. 1850-51-53.
- "Wood's Index Testaceologicus." Hanley. London: Willis and Sotheran. 1856.
- "Manuel de Conchyliologie." Par Dr. J. C. Chenu. Paris: Masson. 1859.
- "Iconica Monographa." Lovell Reeve. Vols. embracing the following:—Buccinum, Bulimus, Conus, Cypræa, Helix, Mitra, Murex, Nerita, Strombus, Ranella, Tapes, Terebratula, Triton, Trochus, Turbo, Venus, Voluta, Ziziphinus.
- "Woodward's Manual of the Mollusca." London: Virtue Bros. 1866.
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## ARGONAUTIDÆ.

- 1 Argonauta. *Lin.*  
*a. nodosa.* *Sol.* Tauranga, and Wellington Harbour.

## OCTOPODIDÆ.

- 1 Octopus. *Cuv.*  
*a. cordiformis.*

## TEUTHIDÆ.

- 1 Loligo. *Lam.*  
*a.* Wellington. (? vulgaris.)

## SEPIADÆ.

- 1 Sepia. *L.*  
*a.* A 5.

## SPIRULIDÆ.

- 1 Spirula. *Lam.*  
*a. fragilis.* (lœvis.) Tauranga Harbour.

## NAUTILIDÆ.

- 1 Nautilus Breynius.  
     *a.* Pompilius. Tauranga.

## STROMBIDÆ.

- 1 Strombus. *L.*  
     *a.* troglodytes.

## MURICIDÆ.

- 1 Murex. *L.*  
     *a.* Zelandicus. (6.) Manawatu Beach, Wai-  
         nui Beach, and Opotiki.  
     *b.* octogonus.  
     *c.* foliatus.  
     *d.* lyratus.  
     *e.* Kaputi.  
     *f.* Bay of Islands.  
     *x g.* Port Jackson.  
 2 Typhis. *Montfort.* (None recent, but occurs in  
         the latest Tertiary deposits.)  
 3 Pisania. *Bicon.*  
     (Pollia) *a.* linea.  
         *b.* lineata.  
 4 Ranella. *Lam.*  
     *a.* Argus.  
     *b.* A 6, and *x* Chatham Islands.  
     *c.* Stewart's Island, (5), and A 7.  
 5 Triton. *Lam.*  
     *a.* leucostomum. A 8, and *x* Port Jackson.  
     *b.* variegatum. (*Lam.*)  
     *x c.* Spengleri. Port Jackson.  
     *d.* australis. (*Lam.*) Kawau.  
     *x e.* Australia.  
     *x f.* Chatham Islands.  
     *g.* (1.)  
     *h.* (2.)  
     *i.* (3.)  
     *x j.* Port Jackson. (Lyratus.)  
     *k.* (11.)  
     *l.* (?) (4.)

- 6 Cancellaria. *Lam.*  
*a.* Stewart's Island.
- 7 Trichotropes. *Broderip.*  
*a.* (17) and x Chatham Islands.
- 8 Fusus. *Lam.*  
*a.* nodosus. (9.)  
*b.* dilatatus. (16.)  
*c.* Zealandicus. (15) and Port Nicholson. A 38.  
*d.* Stangeri.  
*e.* caudatus.  
*f.* vittatus.  
*g.* duodecimus.  
*h.* (7.)  
*i.* (8) and Stewart's Island.  
*j.* (12.) Kaputi.  
*k.* (14.) Kaputi.  
*l.* (18.) Auckland.  
*m.* (19.) Auckland.  
*n.* 14 fathoms. Stewart's Island.  
*o.* A 39.
- 8 (Trophon.)  
*a.* (10.) Stewart's Island.  
 x *b.* Chatham Islands.  
 x *c.* Chatham Islands.

## BUCCINIDÆ.

- 1 Buccinum. *L.*  
*a.* melo.  
*b.* triton.  
*c.* (42.) B. lineolatum. *Reeve.*  
*d.* (63.)  
 x *e.* Chatham Islands.  
*f.* (43.) Oamaru and x Chatham Islands.  
*g.* (55.) Stewart's Island.  
*h.* (45.)  
*i.* (53.)  
*j.* (13.) Oamaru.  
*k.* (41.)

- 2 *Anolax*. *Conrad*. [*Bullia*. *Gray*.]  
     *a*. *Martinii*.  
     *b*. *fuscus*.
- 3 *Terebra*. *Lam*.  
     *a*. *spicatus*.
- 4 *Purpura*. *Lam*.  
     x *a*. *succincta*. Chatham Islands and Port Jackson.  
     *b*. *textilosa*. (49.) (Taranaki.) (51) and x Tasmania.  
     *c*. *scobina*. (57.)  
     \* *d*. *crassalabrum*.  
     *e*. *Novæ Zelandiæ*.  
     *f*. *tessellata*.  
     *g*. *rugosa*.  
     *h*. *lacunosa*.  
     *i*. *maculosa*. (40) and x Chatham Islands.  
     *j*. *albo-marginata*.  
     *k*. *haustum*. (54.) Akaroa and Chatham Is.  
     *l*. *lamellosa*.  
     *m*. *turgida*. (58.) Port Nicholson. Auckland and x Chatham Islands.  
     *n*. *catarracta*.  
     *o*. *rodostoma*. (31. *Dieff*.) (52.)  
     *p*. (*Gray*.)  
     *r*. (50.)  
     *s*. (58 A) and x Chatham Islands.  
     *t*. (44.)
- 5 *Monoceros*. *Lam*.  
     *a*. *calcar*.  
     *b*. *tessellata*.
- 6 *Cassis*. *Lam*.  
     *a*. (59.) Bay of Plenty. A 40 and x Chatham Islands.  
     x *b*. South Australia.
- 7 *Dolium*. *Lam*.  
     *a*. *variegatum*.  
     *b*. Tauranga.
- 8 *Columbella*. *Lam*.  
     x *a*. Port Jackson "bidentata."



9 *Oliva*. *Lam.**a. erythrostoma.*10 *Ancillaria*. *Lam.**a. albisulcata.**b. australis.**c.* A 41 and (60.)*d.* (61.)

## CONIDÆ

1 *Conus*. *L.*\* *a. fuscatus.*\* *b. hyæna.*\* *c. fulmineus.*\* *d. distans.*\* *e. informis.**f. eques.**g.* A 42.2 *Pleurotoma*. *Lam.**a. rosea.**b.* Stewart's Island. 14 fathoms.*c.* (80.) (? *P. Rosea.*)*d.* Stewart's Island.*e.* (81.)(*Mangelia.*)*a.* Stewart's Island.

## VOLUTIDÆ

1 *Voluta*. *L.**a. arabica.* A 43. (82.) (102.) Port Lyttelton.(var.) *elongata.* Sw. (101.) A 44.(var.) *gracilis.* Sw. Waikanae.\* *b. magnifica.**c. fusus.**d.* (100.)*e.* Bay of Islands.2 *Mitra*. *Lam.*\* *a. aurantiaca.*3 *Marginella*. *Lam.**a.* Stewart's Island. (63.)x *b.* South Australia.x *c.* Port Jackson.x *d.* Chatham Islands.

## CYPRÆIDÆ.

1 Cypræa. *L.*\* *a. aurora.**b. caput serpentis.**c. arabica.* (var. *maculata.*)*d.* B 5.*e.* Bay of Islands.

## NATICIDÆ.

1 Natica. *Lam.**a. Zelandica.* (120.) Stewart's Island and  
x Chatham Islands.*b.* (121.)

(Polinices.)

x *a.*

Port Jackson.

2 Lamellaria. *Montagu.**a.* Islet Reef.

## PYRAMIDELLIDÆ.

1 Pyramidella. *Lam.**a.*

B 6.

2 Odostomia. *Fleming.**a.*

Stewart's Island.

3 Chemnitzia. *D'Orbigny.**a.*

Stewart's Island.

*b.*

" " B 5.

4 Eulima. *Risso.**a.*

Stewart's Island.

*b.*

B 7.

## CERITHIADÆ.

1 Cerithium. *Bruguiere.**a. bicarinata.* (134) and Tauranga.*b. australis.**c.*

Lyall's Bay.

x *d.*

Chatham Islands.

*e.*

(135.)

*f.*

Tauranga.

x *g.*

Port Jackson.

*h.*

(133.)

*i.*

Stewart's Island. 30 fath.

## (Triphoris.)

- a.* Bay of Islands.  
*b.* Stewart's Island.  
*c.* " " B.

2 Struthiolaria. *Lam.*

- a.* vermis. (136.)  
*b.* papillosa. Bay of Plenty. B 8.  
*c.* scutulata.  
*d.* gigas. *Sow.* (139.) (137.)  
*e.* (138.)  
*f.* (139 A.)

## MELANIADÆ.

1 Melania. *Lam.*

- a.* B 38.  
*b.*

## (Amnicola.)

- a.* antipodanum.  
*b.* (?) Zelandiæ. Mt. Eden.  
*c.* (150.)  
*d.* B 39.  
*e.* ciliata. Mt. Shepherd and Lake Takapurea.  
*f.* (151.)

## 2 Melanopsis.

- a.* trifasciatus. (640.) (152.)

## TURRITELLIDÆ.

1 Turritella. *Lam.*

- a.* rosea.  
*b.* (160) and B 41.  
*c.* (162) and x Chatham Islands.  
*d.* (161.)  
*e.* (163.)  
*f.* (163A.)

2 Vermetus. *Adanson.*

- a.* cariniferus.  
*b.* Zelandicus.  
*c.* roseus.

3 *Scalaria*. *Lam.*

- a.* (166) and B 42.  
*b.* (167.)  
*c.* (168.)  
*d.* (164.)

## LITTORINIDÆ.

1 *Littorina*. *Férussac.*

- a. coccinea.*  
*b. Diemenensis.*  
*c. cincta.*  
*d.* (189.)  
*e.* B 43. (? *unifasciata.*)  
*f.* Chatham Islands.  
 (Risella.)  
*a.* Port Jackson.

2 *Solarium*. *Lam.*

- a.* Stewart's Island.

3 *Phorus*. *Montf.*

- a.* Kaputi.

4 *Rissoa*. *Frémenville.*

- a.* (182.) B 44.  
*b.* (183.)  
*c.* (184.)  
*d.* Stewart's Island.  
*e.* (181) and Stewart's Is.  
*f.* C 5 and C 6.  
 (Rissoina.)  
*x a.* Chatham Islands.

## PALUDINIDÆ.

1 *Amphibola*. *Schum.*

- a. avellana.* (201.)

## NERITIDÆ.

1 *Nerita*. *L.*

- a. nigra.* (210.)

## TURBINIDÆ.

1 Turbo. *L.*

- a.* granosus.
- b.* straminius.
- c.* smaragdus. Oamaru. C 1. (247.)
- d.* argyrostomus.
- e.* Lagonkairii.
- f.* rubicundis. (*Reeve.*) (231.) (248) and  
x Chatham Islands.
- x *g.* Port Jackson.
- x *h.* (?) Chatham Islands.

2 Phasianella. *Lam.*

- x *a.* australis. Tasmania.

3 Imperator. *Montfort.*

- a.* heliotropium. Dusky Bay. C 8. Wai-  
kanae. x Chatham Islands.
- b.* Cookii. C 38 and x Chatham Is.
- \* *c.* inequalis.
- d.* Hauraki. Kaputi.
- e.* Kaputi.
- x *f.* Port Jackson.
- x *g.* " "

4 Trochus. *L.*

- a.* [Gibbium] sanguineus.
- b.* C 39 and x Chatham Is.
- c.* (237.)

## (Polydonta.)

- a.* elegans. (238.)
- b.* hibernulata. (241) and Chatham Is.

## (Zizyphinus.)

- a.* canaliculatus.
- b.* annulatus.
- c.* Cunninghamsi. (242.)
- d.* tigris. Tauranga. Lyall's Bay. x Chat-  
ham Islands.
- e.* selectus. (240.)
- f.* punctulatus. (245) and x Chatham  
Islands.

## (Margarita.)

- a.* (239.)

- b.* (234.)  
*c.* Chatham Islands.  
 (Elenchus.)  
*a.* Iris. (232.)  
*b.* purpuratus. (233.)  
 x *c.* elegans. Chatham Islands.  
 5 Rotella. Lam.  
*a.* lineolata. (249.)  
 6 Monodonta. Lam.  
*a.* angulatum.  
*b.* reticularis. x Chatham Is. (213.)(212.)  
*c.* tricarinata. (243.)  
*d.* subrostrata. (?) (246.)

## HALIOTIDÆ.

- 1 Haliotis. L.  
*a.* Iris. Lyall's Bay. C 40. (274.) x Chatham Islands.  
*b.* virginea. Oamaru and x Chatham Is.  
 \* *c.* australis.  
 2 Ianthina. Lam.  
*a.* exigua. (270) and x Chatham Islands.  
*b.* communis. Tauranga.

## FISSURELLIDÆ.

- 1 Fissurella. Lam.  
*a.* (282.)  
 2 Emarginula. Lam.  
*a.* striatula.  
 x *b.* fissurata. Chatham Islands.  
*c.* (281.)  
 3 Parmophorus.  
*a.* australis. (?) (280) and Tauranga.  
 (Tugali.)  
*a.* elegans. (?) (283) and x Chatham Islands.

## CALYPTREIDÆ.

- 1 Calyptræa. Lam.  
*a.* dilatata. (?) (293) and x Chatham Islands.

(Trochita.)

- a.* (295.)  
 2 *Crepidula*. *Lam.*  
     *a. costata.* Waiheke Channel. (292.) C 41  
         and Waikanae.  
     *b. contorta.* (290) and C 42.  
     *c.* (296.)  
     *d.* Bay of Islands.  
 3 *Pileopsis*. *Lam.*  
     *a.* (294.)

## PATELLIDÆ.

- 1 *Patella*. *L.*  
     *a. denticulata.*  
     *b. radians.*  
     *c. stellularia.*  
     *d. inconspicua.*  
     *e. stellifera.*  
     *f. margaritaria.*  
     *g. cochlear.*  
     *h. nodosa.*  
     *i. stermus.*  
     *j. radiatilis.*

Museum Nos. 310—317, 319—322, 324, 325.

- 2 *Acmæa*. *Eschscholtz.*

(Lottia.)

- a. fragilis.*  
*b. pileopsis.*

- 3 *Siphonaria*. *Sowerby.*

- a. australis.* (323.)  
*b. Zelandica.* (318) and x Chatham Is.  
*c. scutellum.*

## DENTALIADÆ.

- 1 *Dentalium*. *L.*

- a.* (340.)  
*b.* Stewart's Island.

## CHITONIDÆ.

- 1 *Chiton*. *L.*

- a. canaliculatus.*

<i>b.</i>	<i>pellis-serpentis.</i>	(350.)
<i>c.</i>	<i>viridis.</i>	(?) (352) and D 8.
<i>d.</i>	<i>Sinclairii.</i>	
<i>e.</i>		D 38.
<i>f.</i>		Kaputi. (1.)
<i>g.</i>		D 39.
<i>h.</i>		D 40.
<i>i.</i>		D 41.
<i>j.</i>		D 42.
<i>k.</i>		D 43.
<i>l.</i>		D 44.
<i>m.</i>		E 5.

## (Acanthopleura.)

<i>a.</i>	<i>nobilis.</i>	
<i>b.</i>	<i>aculeatis.</i>	
<i>c.</i>	<i>longicymba.</i>	
<i>d.</i>	<i>undulatus.</i>	
<i>e.</i>		E 6.

## (Amicula.)

<i>a.</i>	<i>monticularis.</i>	
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## (Acanthochaetes.)

<i>a.</i>	<i>biramosus.</i>	
<i>b.</i>	<i>violaceus.</i>	
<i>c.</i>	<i>Hookeri.</i>	
<i>d.</i>		(351.)
<i>e.</i>		(353.)

## (Chitonellus.)

<i>a.</i>	<i>Zelandicus.</i>	
<i>b.</i>		E 7.
<i>c.</i>		E 8.
<i>d.</i>		E 38.

## HELICIDÆ.

1 *Helix*. *L.*

<i>a.</i>	<i>Busbyi.</i>	Hokianga. Horowhenua, and E 39.
<i>b.</i>	<i>Dunniæ.</i>	
* <i>c.</i>	<i>cornu.</i>	
<i>d.</i>	<i>Hochstetteri.</i>	<i>Pf.</i> Picton. Manawatu.
<i>e.</i>		Massacre Bay.
<i>f.</i>		Lake Guyon Run.



- g.* *Urnula*. *Pf.* E 40.  
*h.* *Greenwoodii*. (*Gray.*) Auckland.  
*i.* Auckland.  
*j.* E 41.  
*k.* (360.) (646) and Hokianga.  
*l.* *Phlogophora*. *Pf.* (?) Crater, Mt. Eden.  
*m.* Waipara River.  
*n.* Crater, Rangitoto.  
*o.* Wangaruru.  
*p.* E 42.  
*q.* *Ide*. (*Gray.*) Auckland and Mt. Eden.  
*r.* *egesta*. (*Gray.*) Mt. Eden.  
*s.* *stipulata*. L. R. (*Alpha*, *Pf.*) Mt. Eden.  
*t.* *caput-spinulae*. L. R. (*Epsilon*, *Pf.*) „  
*v.* *corniculum*. L. R. (*Eta*, *Pf.*) (?) *Kirk*.  
 No. 10 a.

x *w.* Chatham Islands.

x *x.* Tasmania.

(*Carocolla*.)

a. *Zelandiae*. (?) *Kirk*, No. 4.

(*Zonites*.)

a. *coma*.

(*Nauina*.)

a. (?) *kivi*. (647) and E 43.

b. *Mariae*.

c. *celinde*. (*Gray.*) (361.)

d. *erigone*. (*Gray.*) *Kirk*, No. 10.

2 *Succinea*. *Draparnaudi*.

a. (?) Auckland. *Kirk*, No. 23.

3 *Bulimus*. *Scopoli*.

a. *antipodarum*. Kataia and (?) Bream Head.

b. *fibratus*. Cape Maria Van Diemen.

4 *Achatina*.

\* a. *sultana*.

#### LIMACIDÆ.

1 *Limax*. *L.*

a. *bitentaculatus*.

2 *Janella*. *Gray*.

a. *antipodarum*. (*Gray.*)

## ONCIDIADÆ.

- 1 *Oncidium. Buchanan.*  
*a. patelloide.*  
*b. nigricans.*

## LIMNÆIDÆ.

- 1 *Physa. Draparnaud.*  
*a. variabilis. (153.) (200.) (656) and E 44.*  
 2 *Ancylus. Geoffrey.*  
*(Latia.)*  
*a. neritoides. Lake Takapurea. Auckland*  
*and H 7.*

## AURICULIDÆ.

- 1 *Auricula. Lam.*  
*a. Zelandiæ. Hect. (154.) (362.) B 40.*

## CYCLOSTOMIDÆ.

- 1 *Cyclostoma. Lam.*  
*(Realia.)*  
*a. egea. (?) (364.) (644) and H 8.*  
 2 *Cyclophorus. Montfort.*  
*a. (?) Mt. Shepherd.*

## TORNATELLIDÆ.

- 1 *Ringicula. Deshayes.*  
*x a. Port Jackson.*

## BULLIDÆ.

- 1 *Bulla. Lam.*  
*a. Quoyii. (? 381.)*  
*b. australis.*  
*c. Zelandiæ. Tauranga Harbour. (380.)*  
*d. (382.)*  
 2 *Philine. Ascanius.*  
*a. Stewart's Island.*

## DORIDÆ.

- 1 *Doris. L.*  
*a. carinata.*

## ÆOLIDÆ.

- 1 *Æolis*. *Cuv.*  
 (Æolidia.)  
*a. longicauda.*

## FIROLIDÆ.

- 1 *Carinaria*. *Lam.*  
*a. australis.*

## TEREBRATULIDÆ.

- 1 *Terebratula*. *Brug.*  
*a. recurva.*  
*b. sanguinea.* See *Terebratella*. (*a.*)  
*c. lenticularis.* See *Waldheimia*. (*a.*)  
 (Waldheimia.)  
*a. lenticularis.* Dusky Bay. Stewart's  
 Island, 30 fathoms.
- 2 *Terebratella*. *D'Orbigny.*  
*a. cruenta.* (*Gray per L. R.*) (391 ?)  
*b. rubicunda.* (*Reeve.*) Dusky Bay.  
 (392.) H 38. x Chatham Islands.  
*c.* (? = *cruenta.*) Wellington.  
 (Magas.)  
*a. Evansii.* (*Gray per L. R.*) (?) Dusky  
 Bay.

## RHYNCHONELLIDÆ.

- 1 *Rhynchonella*. *Fischer.*  
*a. nigricans.* Dusky Bay, and x Chat-  
 ham Islands.

## CRANIADÆ.

- 1 *Crania*. *Retzius.*  
*a.* (400.)

## OSTREIDÆ.

- 1 *Ostræa*. *L.*  
*a.* (*Gray* 210.) (405.)  
*b.* (*Gray* 211.) (? 406.)  
*c.* (407) and Pelorus Sound.  
*d.* H 39.

- |                  |                        |  |
|------------------|------------------------|--|
| <i>e.</i>        | H 40.                  | South Island.  |
| <i>f.</i>        |                        | Burnham Water.   |
| x <i>g.</i>      |                        | Chatham Islands.   |
| 2 <i>Anomia.</i> | <i>L.</i>              |  |
|                  | <i>a.</i>              | <i>Zelandica.</i> Stewart's Island and Queen Charlotte Sound.                      |
|                  | <i>b.</i>              | Queen Charlotte Sound.   |
|                  | ( <i>Placunomia.</i> ) |  |
|                  | <i>a.</i>              | Picton. Stewart's Island.  |
| 3 <i>Pecten.</i> |                        |  |
|                  | <i>a.</i>              | <i>Zelandiae.</i> (409.) Tauranga. Kaputi. Stewart's Island and x Chatham Islands. |
|                  | <i>b.</i>              | <i>laticostatus.</i> Manukau. Massacre Bay and x Chatham Islands.                  |
|                  | <i>c.</i>              | (411) and Stewart's Is.  |
|                  | <i>d.</i>              | H 41 and (410.)  |
|                  | <i>e.</i>              | Stewart's Island.  |
|                  | <i>f.</i>              | H 42.  |
|                  | <i>g.</i>              | Stewart's Island.  |
|                  | <i>h.</i>              | H 43.  |
|                  | <i>i.</i>              | fragment.  |
| 4 <i>Lima.</i>   |                        |  |
|                  | <i>a.</i>              | <i>linguatula.</i>   |
|                  | <i>b.</i>              | Stewart's Island. (412.)   |
|                  | <i>c.</i>              | (413.)   |

AVICULIDÆ.

- 1 Perna. *Brug.*  
(Crenatula.)  
x a. Tasmania.  
2 Pinna. *L.*  
a. Zelandica. H 44. K 5. K 6.  
MYTILIDÆ.  
1 Mytilus. *L.*  
a. canaliculatus, var. 1. (427.) (425) and K 7.  
var. 2. (429.)  
b. polyodontes.  
c. Magellanica. *Ch.* (426) and Chatham Is.  
d. Stewart's Island.

- 2 *Modiola*. *Lam.*  
*a.* *albicosta*.  
*b.* *securis*.  
*c.* (428.) Kaputi and x Chatham Islands.  
 x *d.* Chatham Islands.  
 x *e.* Port Jackson.  
 (Lithodomus.)  
*a.* *truncatus*. (431.) Kaputi, *Mr. Holmes*.  
 (Crenella.)  
*a.* (*Modiolarea*) *impacta*. (430.) K 8 and x Chatham Islands.

## ARCADÆ.

- 1 *Arca*. *L.*  
*a.* (451.) K 38. Stewart's Island and x Chatham Islands.  
*b.* (452.)  
*c.* Auckland and x Port Jackson.  
 2 *Pectunculus*. *Lam.*  
*a.* *laticostatus*. (440.) (441.) K 39. (443.)  
*b.* (444.) Stewart's Island.  
*c.* var. (442.)  
 3 *Nucula*. *Lam.*  
*a.* *australis*. (?) (448.) (450.) K 40 and x Port Jackson.  
*b.* Port Nicholson and K 41.  
 4 *Leda*. *Schumacher*.  
*a.* (453.) K 42.  
 x *b.* Port Jackson.  
 5 *Solenella*. *Sowerby*.  
*a.* *Cumingii*. (445.)  
*b.* (? var. of *a.*) (446.)  
 6 *Solemya*. *Lam.*  
*a.* *australis*. (454.) Tauranga and Stewart's Island.

## TRIGONIADÆ.

- 1 *Trigonia*. *Brug.*  
 x *a.* *pectinata*. Port Jackson.

## UNIONIDÆ.

1 Unio. *Retz.*

- a.* *Menziesii.* (474.) Horowhenua. Wairuna  
Creek. var.—N. Shore Lake. (475.)  
Kakapo. Waikato. Taupo. (473.)  
*b.* *Aucklandica.* (472.) Rotorua. Horowhenua.  
Lake Guyon.

## CHAMIDÆ.

1 Chama. *L.*x *a.*

Port Jackson.

## CARDIADÆ.

1 Cardium. *L.*

- a.* *pulchellum.* (492.) (492A.) (493.)  
x *b.* Tasmania.

## LUCINIDÆ.

1 Lucina. *Bruguière.**a.* *Zelandica.*

*b.* *divaricata.* (500.) Stewart's Island and  
x Chatham Islands.

(Cryptodon.)

*a.*

(502.)

2 Diplodonta. *Bronn.**a.*

(588.)

*b.*

(501.) Stewart's Island.

3 Kellia. *Turton.**a.*

(490.) (491.) Kaputi.

(Pythina.)

*a.*

Islet Reef.

## CYCLADIDÆ.

1 Cyclas. *Bruguière.*

- a.* *Zelandiæ.* *W. Kirk*, No. 24. Auckland.  
(476.) (477) and K 43.

## CYPRINIDÆ.

1 Circe. *Schumacher.*x *a.*

Port Jackson.

2 *Cardita. Bruguière.*

- a.* (515) and x Chatham Is.  
 (Venericardia.)  
*a. australis.* (*Quoy.*) (513.) Stewart's  
 Island. (510) and x Chatham Is.  
*b.* (512.)  
*c.* (512A.) (511.) K 44.

## VENERIDÆ.

1 *Venus. L.*

- a. Yateii.* (547.) M 5. var. (549) and M 6.  
*b. Dieffenbachii.*  
*c. Stutchburii.* (533.) (494.) (495.) (533A.)  
 (532) and x Chatham Islands.  
*d. Zelandica.* (537.)  
*e. crassa.* (530.) (*Spurci, Reeve.*)  
*f. intermedia.*  
*g. mesodesma.*  
*h. violacea.*  
 \* *i. plumbea.*  
*j. Lamellata.* (*Reeve.*) (548.)  
*k. eburnea.* (*Reeve.*) Stewart's Island.  
*l.* (531.) (534.)  
*m.* (535.) (? = *b.*)

2 *Artemis. Poli.*

- x *a. subrosea.* Chatham Islands.  
*b. australis.*  
*c.* (542.)  
*d.* (536.)  
*e.* M 7. (544.)  
*f.* (543.)

3 *Lucinopsis. Forbes.*

- (*Dosinca. Gray.*)  
*a. Zelandica.*  
*b. oblonga.*

4 *Tapes. Muhlfeldt.*

- a. intermedia.* (*Reeve.*) (538.) (538A) and  
 x Chatham Islands.  
*b. fabagella.* (*Reeve.*) (539.) (539A.)  
*c.* (541.)

- 5 *Venerupis*. *Lam.*  
*a. reflexa.* (611.) (611A.) Kaputi and  
 x Chatham Islands.  
*b.* (545.)  
 x *c.* Port Jackson.

## MACTRIDÆ.

- 1 *Mactra*. *L.*  
*a. discors.*  
*b. (Spisula.) ovata.* Auckland.  
*c. elongata.*  
*d.* (571.)  
*e.* (570.)  
*f.* (587.)
- 2 *Lutraria*. *Lam.*  
*a. acinaces.* (? 572.) M 8. M 38. M 39.  
 (Vaganella.)  
*a.* (593.)

## TELLINIDÆ.

- 1 *Tellina*. *L.*  
*a. alba.*  
*b. lactea.* var. 1. (583) and x Chatham Is.  
 var. 2. Stewart's Island. Tauranga  
 Harbour. (586.)  
*c.* (591.) (? = *alba*.)
- 2 *Gastrana*. *Schumacher.*  
*a.* Stewart's Island. M 40. M 41.
- 3 *Psammobia*. *Lam.*  
*a. Stangeri.* (585.)  
*b. lineolata.* (590) and x Chatham Is.  
*c. (Psammotea) nitida.* (582) and x Chat-  
 ham Islands.  
*d.* (?) Stewart's Island.
- 4 *Semele*. *Schumacher.*  
*a.* (i) (581.)  
 (Syndosmya.)  
*a.* M 42.  
*b.* M 43.



- 5 *Mesodesma. Deshayes.*  
*a. Chemnitzii.* (589.)  
*b. ventricosa.* (592.) (?)  
*c. subtriangulata.*  
*d.* (580.) (593) and x Chatham Islands.  
*e.* (594.)

## MYACIDÆ.

- 1 *Corbula. Bruguière.*  
*a. Zelandica.* (612.)  
 2 *Neæra. Gray.*  
*a.* Stewart's Island.  
 3 *Panopæa. Menard de la Groye.*  
*a. Zelandica.* Stewart's Island. Massacre Bay and x Chatham Islands.  
*b. Solandri.* (610) and Massacre Bay. (?)

## ANATINIDÆ.

- 1 *Anatina. Lam.*  
*a.* Massacre Bay. (622.)  
 (Racta.)  
*a.* (623.)  
 2 *Lyonsia. Turton.*  
*a.* P 43. P 44.  
 3 *Myadora. Gray.*  
*a. striata.* (620.)  
*b.* (621.)  
*c.* Stewart's Island.  
 4 *Chamostræa. Roissy.*  
 x *a. albida.* Port Jackson.  
*b.* Kawhia and x Chatham Islands.

## GASTROCHLENIDÆ.

- 1 *Saxicava. Bellevue.*  
*a. (Hiatella) minuta.* Kaputi. x Chatham Islands.

## PHOLADIDÆ.

1 Pholas. *L.**a.* (*Barnea*) *similis.* (630) and x Chatham  
Islands.*b.* M 44.

2 Pholadidea.

*a.* (*Talona*) *tridens.* M 45.

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XVI. TO XIX. FOR INSECTS, CRUSTACEA,  
AND ZOOPHYES, SEE SUPPLEMENT.

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## NEW ZEALAND GEOLOGICAL COLLECTIONS.

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The arrangement of the New Zealand Geological Specimens in the Museum is of a two-fold character.

The first is founded on a systematic comparison of the characters of the different Rocks and Fossils represented in the Collections, and is intended for the assistance of those who desire to acquaint themselves with the general features of the structure of these Islands.

With this view, the Rock specimens have been arranged according to the system of Petrology given in a recognized standard work, and the Fossils have been arranged, so far as can be yet determined, in the order of their relative age or stratigraphical position.

This section of the Collection of Fossils has been rendered complete in so far as it contains a specimen of each species of Fossil that has been distinguished, but as the localities whence the Fossils were obtained are rarely strictly comparable on a stratigraphical basis, geographic arrangement only has been adhered to in the Catalogue.

The second form in which the Geological Collections are represented in the Museum recognizes only this geographic distribution, so that the specimens illustrative of the Geology of any particular district may be referred to with ease, either in the Catalogue or by inspection of the Rocks and Fossils.

Special Collections, devoted to the illustration of the Minerals of chief economic interest, complete this section of the Museum.

## XX. ROCK SPECIMENS.

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Systematic arrangement according to the classification given in Cotta's "Treatise of Lithology," English translation,—Longmans, 1866.

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### GENERAL SYNOPSIS.

- I. IGNEOUS ROCKS, products of absolute fusion.
    - A.—Rocks poor in Silica, or Basic.
      - (a.) Volcanic, *e.g.*, Dolerite, Basalt, &c.
      - (b.) Plutonic, *e.g.*, Greenstones (Diabase, &c.)
    - B.—Rocks rich in Silica, or Acidic.
      - (a.) Volcanic, *e.g.*, Trachytes.
      - (b.) Plutonic, *e.g.*, Granites.
  - II. METAMORPHIC CRYSTALLINE SCHISTS, products of heat (less than actual fusion), acting on Sedimentary Rocks, *e.g.*, Gneiss, Mica Schist, &c.
  - III. SEDIMENTARY ROCKS, products of deposit, *e.g.*, Slates, Limestones, Sandstones, and Tufas.
  - IV. ROCKS, probably of organic origin, *e.g.*, Carbonaceous Rocks, Ironstones, Serpentine, &c.
  - V. ROCKS, composed of one mineral only, *e.g.*, Quartz, Opal, &c.
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### I. IGNEOUS ROCKS.

#### A.—*Volcanic Basic Igneous Rocks.*

#### 1. DOLERITE GROUP.

Crystalline granular compounds of Labradorite and Augite, with some Titaniferous Magnetic Iron Ore.

- a.* Common Dolerite. Maniototo Plain, Otago.
- b.* Anamesite. Lyttelton Tunnel, Canterbury.
- c.* Porphyritic Dolerite. Lyttelton Tunnel, Canterbury.
- d.* Vesicular Dolerite. Lyttelton Tunnel, Canterbury.

## 2. BASALT GROUP.

Compact nearly black rocks, dull conchoidal fracture ; contain Carbonates, Zeolites, Olivine, and Magnetic Iron Ore.

- a. Common Compact Basalt. Pine Hill, Otago.
- b. Porphyritic Basalt. Tomahawk Bay, Otago.
- c. Vesicular Basalt. Lyttelton Tunnel, Canterbury.
- d. Amygdaloidal Basalt. The Heads, Otago.

*A. b.—Basic Plutonic Rocks.*

## 4. DIABASE GROUP.

Crystalline-granular compounds of Oligoclase, Labradorite, and Albite ; with Pyroxene and some Chlorite ; in a fresh state, dark green.

- a. Granular Diabase. Brook Street Valley, Nelson.
- b. Fine grained Diabase. North end of Boulder Bank, Nelson.
- c. Porphyritic Diabase. Nelson.

## 5. GABBRO GROUP.

Compounds of Labradorite, or Saussurite with Diallage, Smaragdite or Hypsthene, and other minerals ; irregular in composition and texture.

- a. Gabbro. Hokuri Creek, Otago.
- d. Hypersthene. Dun Mountain, Nelson.

## 6. DIORITE GROUP.

Crystalline-granular compounds of Felspar (not Orthoclase) and Hornblende ; in a fresh state usually dark green.

- a. Granular Diorite. Wairoa Gorge, Nelson.
- b. Fine grained Diorite. Moanataiari Creek, Auckland.
- c. Porphyritic Diorite. West Coast, Otago.
- f. Amygdaloidal Diorite. Pelorus Valley, Marlborough.

## 7. APHANITE GROUP.

Compact, apparently homogenous mass, dark green to black; tough, sometimes porphyritic; vesicular or amygdaloidal.

- a.* Common Compact Aphanite. Greenstone River, Otago.

## 8. MELAPHYRE GROUP.

Dark green, brown, or black rocks, compounds of Felsite, Pyroxene, Hornblende and Magnetic Iron Ore; compact, porphyritic, vesicular, or amygdaloidal, always free from Quartz.

- a.* Melaphyre. Hewson's Creek, Orari, Canterbury.

## 9. PORPHYRITE GROUP.

Contain in a felsitic matrix (usually dark color) individual crystals of Felspar, Mica, or Hornblende; the matrix may be vesicular or amygdaloidal, but contains no Quartz.

- A.* Felspar Porphyrite. Nelson.  
*Aa.* Crystalline Felspar Porphyry. Nelson.  
*Ae.* Vesicular Felspar Porphyry. Tongariro. (?)  
*B.* Hornblende Porphyrite. Sugar Loaf, Taranaki.  
*Ba.* Crystalline Hornblende Porphyry. Sugar Loaf, Taranaki.  
*C.* Mica-porphyrite.  
*Ca.* Crystalline Mica Porphyry. West Coast, Otago.

## 10. MICA TRAP GROUP.

Compounds of Mica and Felspar, without porphyritic texture. No Quartz.

## 11. SYENITE GROUP.

Crystalline granular compounds of Orthoclase or Microcline and Hornblende, usually some Titanite.

- a.* Common Granular Syenite. Wakatipu Lake, Otago.  
*b.* Porphyritic Syenite. The Bluff, Southland.

*B. a.—Acidic Igneous Rocks, Volcanic.*

## 13. TRACHYTE GROUP.

Compounds of Sanadine, Oligoclase (or even Albite and Labradorite), with some Hornblende or Augite and dark colored Mica; a rough mass in which some of the mineral constituents are frequently distinctly and separately developed and imbedded.

- a.* Granular Trachyte. Mount Egmont, Taranaki.
- b.* Porphyritic Trachyte. Sugar Loaf, Taranaki.
- c.* Compact Trachyte. Little Barrier Island.
- d.* Vesicular Trachyte. Lyttelton Tunnel.
- E.* Trachy-dolerite. Great Barrier Island.

## 14. RHYOLITE GROUP.

Compact, enamel-like or vitreous matrix, enclosing grains or crystals of Sanadine, Oligoclase, Mica, or even Quartz.

- Aa.* Common Trachyte Porphyry. Lake Taupo.
- Ab.* Perlite-like Trachyte Porphyry. Taupo.
- Ac.* Argilo-Trachyte Porphyry. White Island.
- Ad.* Vesicular or Cavernous Trachyte Porphyry. Ruapehu, Taupo.
- Ae.* Pumiceous Trachyte Porphyry. Taupo.
- Af.* Slaty Trachyte Porphyry. Ruapehu, Taupo.
- B.* Perlite. Rotorua.
- Ca.* Common Obsidian. Mayor Island.
- Cb.* Obsidian Porphyry. Mayor Island.
- Cc.* Vesicular Pumice stone. Mayor Island.

## 15. PHONOLITE, OR CLINKSTONE GROUP.

Compact, dark greenish grey matrix; gives a clear sound when struck by the hammer.

- a.* Common Phonolite. Dunedin.
- b.* Porphyritic Phonolite. Dunedin.
- c.* Trachytic Phonolite. Bell Hill, Otago.

B. b.—*Acidic Igneous Rocks, Plutonic.*

## 16. GRANITE GROUP.

Crystalline granular compounds of Felspar, Quartz, and Mica ; in some varieties Chlorite, Tale, Hornblende, and Schorl occur.

- a. Common Granite. Separation Point.
- b. Porphyritic Granite. Rakau River, West Coast.
- c. Gneissic Granite. Kanieri River, Hokitika.
- g. Protogine Granite. Pickersgill Harbour, Otago.
- i. Schorlaceous Granite. Buller River.
- k. Adularia Granite. George Sound.

## 17. GRANITE PORPHYRY GROUP.

Granite with compact or fine grained base.

- a. Granite Porphyry. West Coast, Otago.
- c. Micaceous Granite Porphyry.

## 18. QUARTZ PORPHYRY, OR ELVANITE GROUP.

A compact felsitic matrix, enclosing crystals of Felspar and Quartz.

- a. Common Quartz Porphyry. Mine Bay, Great Barrier Island.

## 19. FELSTONE, OR FELSITE ROCK GROUP.

Texture compact, fracture dull, smooth, conchoidal or fissile ; color yellowish, reddish, grey, greenish or bluish, weathers white. Hardness, 6.

- a. Felstone proper. Wakapawaka, Nelson.

## 20. PITCHSTONE GROUP.

Principal mass is homogenous, vitreous pitch-like appearance, fracture conchoidal, lustre resinous, translucent at the edges, color various.

- a. Common Pitchstone. Canterbury.
- b. Pitchstone Porphyry.



## II. METAMORPHIC ROCKS.

## 21. GRANULITE GROUP.

Fine grained to compact fissile compounds of Felspar and Quartz, usually some Mica.

- a.* Common Granulite. Takaka Range, Nelson.
- c.* Micaceous, or Gneiss Granulite.

## 22. GNEISS GROUP.

Crystalline granular compound of Quartz, Felspar, and Mica, texture foliated.

- a.* Common Gneiss. Tomatea, Nelson.
- b.* Granulite Gneiss. Pakewau, Nelson.
- i.* Micaceous Gneiss. Tomatea, Nelson.
- l.* Syenitic Gneiss. Crooked Arm, West Coast.
- m.* Protogine Gneiss. North Arm, Breaksea Sound, Otago.
- n.* Garnetiferous Gneiss. Tomatea, Nelson.

## 23. MICA SCHIST GROUP.

Crystalline schistose compounds of Mica and Quartz.

- a.* Common Mica Schist. Maniototo Plains, Otago.
- b.* Mica Schist, very fine and even in texture. Pioneer Claim, Dunstan, Otago.
- c.* Mica Schist, of wavy texture. Kanieri, Hokitika.
- e.* Mica Schist, with contorted and irregular texture. Otago.
- f.* Stratified Mica Schist. Kanieri, Hokitika.
- g.* Mica Schist, of knotty texture. Dunstan, Otago.
- h.* Garnetiferous Mica Schist. Takaka Range, Nelson.
- i.* Gneissic Mica Schist. Kanieri, Hokitika.
- k.* Chloritic Mica Schist. Ida Burn, Otago.
- l.* Talcose Mica Schist. Dusky Bay, Otago.
- n.* Graphitic Mica Schist. Shotover, Otago.
- o.* Micaceous Iron Schist. Shotover, Otago.
- q.* Hornblende Mica Schist. Victoria Glacier.
- r.* Quartzose Mica Schist. Maori Gully, Otago.
- s.* Calcareous Mica Schist. Collingwood Waterfall.

## 24. QUARTZOSE SCHIST GROUP.

Chiefly consist of Quartz, usually contain some Mica.

- a.* Common Quartz Schist. Waimongaroa, Nelson.
- b.* Granular Quartz Schist. Otago.

## 26. CHLORITE SCHIST GROUP.

Schistose aggregates of Chlorite, combined with Quartz, also with Felspar, Mica and Talc; color greenish; appearance scaly.

- a.* Common Chlorite Schist. Kakapo Lake, West Coast.

## 27. TALC SCHIST GROUP.

Schistose aggregates of Talc combined with some Quartz, sometimes with Felspar; Color yellowish or greenish; soft greasy feel.

- a.* Common Talc Schist. New-river-head, Otago.

## 28. HORNBLLENDE-SCHIST GROUP.

Schistose or fine grained to compact rocks, chiefly Hornblende, with small quantities of Felspar, Quartz, or Brown Mica. Always dark green to black.

- b.* Hornblende Rock. The Bluff, Southland.
- c.* Actinolite Schist. Maori Point, Shotover.

## 29. ARGILLACEOUS MICA-SCHIST GROUP.

Schistose aggregates in which Mica is the chief ingredient, sometimes differ only from Clay Slate in structure by the superior lustre.

- a.* Common Argillaceous Mica Schist. Wangapeka River, Nelson.

## III. SEDIMENTARY ROCKS.

## 30. CLAY SLATE GROUP.

Compact fissile rocks of various colors, red, purple, green or black, consist chiefly of Clay (Alumina), other minerals are generally present as admixtures; cleavage usually perfect and characteristic.

- a.* Common Clay Slate. Wakatipu Lake, Otago.
- b.* Roofing Slate. Wakatipu Lake, Otago.
- c.* Pencil Slate.
- cl.* Amygdaloidal Slate. Rolling River, Nelson.
- c2.* Brecciated Slate. Wakatipu Lake, Otago.
- d.* Whetslate (Whetstone).
- e.* Carbonaceous Clay Slate. Wakapuaka, Nelson.
- f.* Arenaceous Clay Slate. Takaka Range, Nelson.
- g.* Micaceous Clay Slate. Kanieri River, Hokitika.
- h.* Calcareous Clay Slate. Aniseed Valley.
- i.* Cherty Slate. Maitai Valley, Nelson.
- j.* Garnetiferous Clay Slate. Kaituna River.
- k.* Chloritic Clay Slate. McKellar Lake, Otago.
- l.* Aphanite Slate. Wakatipu Lake, Otago.
- m.* Quartzose Slate. Kanieri.
- n.* Argillaceous Clay Slate. Wakatipu Lake, Otago.
- o.* Pyritous Clay Slate. Wangapeka, Nelson.
- p.* Chrastolite Clay Slate. Slate River, Nelson.
- q.* Tremolite Clay Slate. Kanieri, Hokitika.
- r.* Sandy Slate. Wellington.

## 31. ARGILLACEOUS SHALE GROUP.

Laminated Clay rocks where fissile texture is due to original stratification and not to slaty cleavage, in other respects similar to Slates into which they frequently pass.

- a.* Common Shale. Waikato.
- d.* Carbonaceous Shale. West Wanganui.
- e.* Variegated Shale.
- f.* Arenaceous Shale. Mount Hamilton, Otago.
- g.* Micaceous Shale. Mount Rochfort, Nelson.
- h.* Calcareous Shale.

## 32. CLAY AND LOAM GROUP.

Earthy deposits chiefly composed of Clay, which when moist are more or less plastic.

- a.* Clay. Pakawau, Nelson.
- b.* Loam.
- d.* Graphite Clay. Pakawau.
- e.* Micaceous Clay. Otepopo, Otago.

## 33. CLAYSTONE AND HARDENED CLAY GROUP.

Compact and tolerably solid masses, composed of Clay, not slaty, fracture earthy, color various.

- a.* Compact Claystone. Auckland.
- b.* Vesicular Claystone. Lyttelton Tunnel.
- c.* Amygdaloidal Claystone. Lyttelton Tunnel.

## 35. LIMESTONE GROUP.

Crystalline-granular, compact, earthy or oolitic aggregates of Calcspar, effervesce with acids, scratch under the knife.

- a.* Granular Limestone.
  - a1.* Crystalline Limestone. Ruatanua, Nelson.
  - a2.* Subcrystalline Limestone. West Wanganui.
  - ab.* Anthraconite.
- b.* Compact Limestone. Clarence River, Marlborough.
- bb.* Bituminous Limestone. Shag Valley, Otago.
- bc.* Cherty Limestone. Teawaiti.
- ca.* Chalk. Conway River, Nelson.
- d.* Oolite Limestone. Motanau, Canterbury.
- e.* Nodular Limestone. Hampden, Otago.
- f.* Slaty Limestone. Blue Creek.
- g.* { *a.* Spongy Limestone. Tokomairiro, Otago.  
       *b.* Calcareous Tuff. Hot Springs.
- h.* Geodic Limestone. Hampden, Otago.
- i.* Cellular Limestone. Nelson.
- k.* Breccia Limestone. Ruatanua.
- m.* Fibrous Limestone. Aorere Caves, Nelson.

### 36. DOLOMITE, OR MAGNESIAN LIMESTONE GROUP.

Granular, compact aggregates of Bitter-spar and Calc-spar; effervesce only feebly with acids.

### 37. GYPSUM GROUP.

Sulphate of Lime, usually crystalline, sometimes compact or fibrous, soft, and generally white.

- b.* Porphyritic Gypsum. Taranaki.
- d.* Fibrous Gypsum. Rotorua Hot Springs.
- e.* Spathic Gypsum (Selenite). Taranaki.

### 39. SANDSTONE AND GRITSTONE GROUP.

Small grains of some mineral cemented together by a mineral substance.

- a.* Common Sandstone. Nelson.
- b.* Coarse grained Sandstone. Otago.
- c.* Fine grained Sandstone. Whareama.
- e.* Fissile Sandstone. Hokianga.
- g.* Argillaceous Sandstone. Mount Charles, Otago.
- h.* Marly Sandstone. Kanieri, Hokitiki.
- i.* Calcareous Sandstone. Nelson.
- k.* Siliceous Sandstone. Rolling River, Nelson.
- l.* Ferruginous Sandstone. Wangarei, Auckland.
- m.* Kaolin Sandstone. Wangarei, Auckland.
- p.* Quartz Sandstone. Brunner Coal Mines, W. C.
- q.* Micaceous Sandstone. Brunner Coal Mines, W. C.
- s.* Green Sandstone. Waikawa, Otago.
- t.* Shell Sandstone. Wangapeka River, Nelson.

### 40. CONGLOMERATE OR PUDDINGSTONE GROUP.

Rounded stones of any mineral or rock, firmly cemented together by media of various kinds.

- a.* Calcareous Conglomerate. Queenstown, Otago.
- b.* Sandstone Conglomerate. Wangapeka, Nelson.
- c.* Mica Schist Conglomerate. Ruatanua, Nelson.
- d.* Quartz Schist Conglomerate. Glengoil Claim, Nelson.

- e. Graphite Slate Conglomerate. Pakewau, Nelson.
- f. Quartz Conglomerate. Brunner Coal Mines, Nelson.
- g. Clay-slate Conglomerate. Wangarei, Auckland.

#### 41. BRECCIA GROUP.

Angular fragments of any mineral or rock, firmly cemented together by media of various kinds.

- a. Slate Breccia. Ruatanua, Nelson.
- b. Sandstone Breccia. Wangapeka, Nelson.
- c. Schist Breccia. Dunstan, Otago.
- d. Chert Breccia. Wangapeka, Nelson.
- e. Basaltic Breccia. Oamaru Cape, Otago.
- f. Trachyte Breccia.

#### 42. TUFA GROUP.

Accumulations of lapilli, fragments, ash, or other substances, ejected from volcanoes, and more or less firmly compacted together.

##### A.—*Volcanic Tufas, Basaltic or Trachytic.*

- a. Peperino. Waiohanga, Auckland.
- b. Basalt Tufa. Petroleum Springs, Taranaki.
- c. Palagonite Tufa. Taipo Hill, Otago.
- e. Trachyte Tufa. Governor's Pass, Great Barrier.
- h. Alum Stone. Arid Island, Great Barrier.

##### B.—*Tufa formations of Plutonic Rocks.*

- l. Greenstone Tufa. Great Barrier Island.
- m. Laterite. Dunedin.

## IV. ROCKS, OF SPECIAL OR ORGANIC ORIGIN.

## 44. SERPENTINE GROUP.

Compact rocks, dull in fresh fracture, soft, greasy feel ;  
dark green or brown.

- a.* Common Compact Serpentine. Windley Creek, Otago
- b.* Porphyritic Serpentine. Mount Arthur.
- c.* Slaty Serpentine. Dun Mountain.
- d.* Veined Serpentine. Awateri.

45. DISTHENE ROCK, EKLOGITE OR SMARAGDITE  
ROCK GROUP.

Compounds of Smaragdite and Red Garnet.

- a.* Disthene. Westland.

## 46. Zwitter Rock. Anatoki, Nelson.

A dark grey aggregate, rich in quartz texture, fine  
grained and compact.

## 54. BROWN COAL, OR LIGNITE GROUP.

Compact or earthy, inflammable, brown or black,  
streak brown.

- a.* Common Brown Coal. Motanau, Canterbury.
- b.* Earthy Brown Coal. Saddle Hill, Otago.
- c.* Resinous Brown Coal. Shag Point, Otago.
- d.* Lignite, or Bituminous Wood. Tuapeka, Otago.

## 55. COMMON, BLACK, OR PIT-COAL GROUP.

Compact black mass, lustre resinous, streak black,  
usually friable, not so inflammable as Brown Coal ;  
burns with flame, smoke, and smell.

- 1. Caking Coal. Aorere River, Nelson.
- 2. Splint Coal.
- 3. Cherry, or Soft Coal. Buller River, Nelson.

## 56. Anthracite. Acheron River, Canterbury.

Black, vitreous to sub-metallic lustre, friable, streak  
black, difficult to ignite, and burns almost without  
smoke and smell.

## 57. Graphite, or Plumbago. Ruatanua.

- A greyish-black aggregate, consisting of Graphite; texture flaky to compact, soft, streak black, greasy feel, resists fire.

## 62. BROWN HEMATITE GROUP.

Compact earthy, porous, or fibrous aggregate of Brown Iron Ore; yellowish-brown to black, with brown streak.

- a. Compact Brown Hematite.
- b. Ochrey Brown Iron Ore, Yellow Ochre.
- c. Fibrous Brown Iron Ore.
- d. Reniform Iron Ore.
- f. Oolitic Brown Ore.
- g. Bog Ore. Wangarei.
- k. Siliceous Brown Hematite. Wellington.

## 63. RED HEMATITE GROUP.

Aggregate of Red Iron Ore; color red to black, streak red.

- a. Common Red Hematite. Molyneux River, Otago.
- b. Earthy Hematite. Half-way Bush, Dunedin.
- c. Micaceous Iron Schist. Skeet River, Nelson.
- f. Specular Iron Ore. Dun Mountain, Nelson.

## 64. MAGNETIC IRONSTONE GROUP.

Granular or compact aggregates of Magnetic Iron Ore; black, streak black, lustre metallic, influences the magnetic needle.

- a. Granular Magnetic Ironstone. Nelson.
- b. Compact Magnetic Ironstone.
- c. Schistose Magnetic Ironstone. Wakatipu Lake, Otago.
- f. Chromic Ironstone.
- g. Garnetiferous Ironstone. Dunstan, Otago.



## V. ROCKS, COMPOSED OF ONE MINERAL ONLY.

## 69. OPAL GROUP.

## White Amorphous Silica.

- a.* Siliceous Sinter. Taupo.
- b.* Semi-opal. Pomahaka.
- c.* Menilite. Malvern Hills, Canterbury.

## 70. QUARTZ GROUP.

- a.* Rock Crystal and Amethyst. Thames, Auckland.
- b.* Common Quartz. Rewaka, Nelson.
- c.* Ferruginous Quartz. Thames, Auckland.
- d.* Hornstone, or Chert. Ruatanua, Nelson.
- e.* Lydian Stone. Wangarei, Auckland.
- f.* Jasper. Hongikori, Auckland.
- g.* Agate. Upper Harbour, Dunedin.
- h.* Flint. Marlborough.

- 76. Barytes, or Heavy Spar. Auckland.
- 78. Phosphorite. Taranaki.
- 84. Malachite. Nelson.
- 88. Kaolin, or Porcelain Clay.
- 95. Bole. Lyttelton, Canterbury.
- 104. Galena. Nelson.
- 106. Arsenical Pyrites. Nelson.
- 107. Marcasite.
- 108. Pyrites. Collingwood.
- 110. Sulphur. White Island.
- 111. Dunitite. Dun Mountain, Nelson.
- 112. Jade. West Coast, Otago.

## ECONOMIC MINERALS.

## GRAPHITE GROUP.

- 1 Graphite, or Plumbago. (Black Lead.) Ruatanua.
- 2 Graphite. Eccles Mine, Pakawau, Nelson.
- 3 Graphite. Prepared by New Zealand Plumbago Co. Pakawau.
- 4 Graphite Slate. Mary Bank, Wakapuaka, Nelson.

## AURIFEROUS GROUP.

## WASH DIRTS.

- 1 Darkies' Terrace, Nelson.
- 2 Kaioi River, Nelson.
- 3 Jones' Flat, Charleston, Westland.
- 4 Totara Dirt. Jones' Flat, Charleston.
- 5 Robinson's 90 ft. Jones' Flat, Charleston.
- 6 Wetherstones. Otago.
- 7 Fork of Totara River, Westland.
- 8 Taipo Workings.
- 9 Totara Creek. Blockade Gully.
- 10 Loose Conglomerate. Ballarat Hill, Waimea.
- 11 Ho Ho Diggings.
- 12 Okarita. Westland.
- 13 Paddock Diggings. Kanieri, Westland.

## REEF STONES.

- 1 Brecciated Quartz Reef, containing Amorphous and Crystalline Quartz, Mica, Chrysocolla, Chalcopyrite, and Oxide of Iron. Arrow Reef, Otago.
- 2 Brecciated Quartz Reef, with vein of Crystalline Quartz. Waipori Bridge, Otago.
- 3 Compact Brecciated Quartz Reef. Nugget Reef, Shotover, Otago.
- 4 Quartz Reef, containing Copper and Gold. Upper Shotover Reef, Otago.
- 5 Crystallized Quartz; the amorphous part at the base of the crystals being rich in Gold. Hope of All Nations.
- 6 Reef traversed by threads of Auriferous Pyrites and Quartz. Thames, Auckland.

- 7 Vein in Serpentine, containing Gold, Copper, and Iron. Dun Mountain, Nelson.
- 8 Sandstone, containing 5 dwts. of Gold per ton. Terawiti, Wellington.
- 9 Sandstone Reef (top), yielding 2 oz. of Gold per ton. Baker's Hill, Wellington.
- 10 Sandstone Reef (lower level), yielding 3 oz. 5 dwts. of Gold per ton. Baker's Hill, Wellington.

## PLATINUM SAND.

- 1 Platiniferous Sand. Stewart's Island.
- 2 Platiniferous Sand (concentrated). Stewart's Island.

## MERCURY.

- 1 Mercurial Sand. Auckland.
- 2 Native Mercury. Hot Springs, Pakaraka, Bay of Islands.

## ARSENIC.

- 1 Native Arsenic (incrusting).
- 2 Arsenic, associated with Calc-spar.

## IRON GROUP.

## IRON ORES.

- 1 Iron Stone. Maori Point, Shotover, Otago.
- 2 Magnetite Rock. Wyndham, Otago.
- 3 Impure Hematite. Sunnyside, Dunedin.
- 4 Hematite. West Coast, Canterbury.
- 5 Micaceous Iron Ore. Skeet River, Nelson.
- 6 Specular Iron Ore. Dun Mountain, Nelson.
- 7 Magnetic Iron Ore. Dun Mountain, Nelson.
- 8 Red Hematite. Mongonui.
- 9 Reniform Iron. Spring Swamp, Auckland.
- 10 Bog Iron Ore.

## SANDS.

- 1 Tauranga. Magnetite 87·4, Hematite and Titanic Iron 8·6, Quartz and Olivine 4.
- 2 Nelson. Magnetite 87·3, Hematite 9·4, Silica, Olivine, &c. 3·3.

- 3 Musgrave's Run, Otago. Magnetite 86·06, Hematite 10·51, Silica, Slate, &c. 3·43, also Gold.
- 4 Dunstan Diggings, Otago. Magnetite 82·77, Titanite 9·73, Gold 0·48, Quartz and Slate 7·02.
- 5 Wakatipu Lake, Otago. Magnetite 80·00, Hematite 7·61, Quartz 12·39.
- 6 Port Hardy, D'Urville's Island. Magnetite 78·6, Chrome Ore traces, Silica, Serpentine Slate, and a little Mercury 21·4.
- 7 Stewart's Island. Magnetite 77·8, Titanite 20·1, Silica 2·10.
- 8 Nelson. Magnetite 75·0, Quartz 25·0. Contains garnet
- 9 Dunstan Diggings, Otago. (2nd sample.) Magnetite 74·40, Silicate of Iron 12·1, Gold, Quartz, Mica Schist, and Garnet 13·5.
- 10 Stewart's Island. Magnetite 71·50, Titanic Iron 25·97, Silica 3·53.
- 11 Taranaki. Magnetite 71·0, Titanite 8·0, Quartz and Olivine 21·0.
- 12 Saddle Hill, Otago. Magnetite 58·38, Titanite 25·66, Quartz, Olivine, and Basalt 15·96.
- 13 Buller River, Nelson. Magnetite 54·40, Titanite 42·50, Quartz and Garnet 3·10.
- 14 Wanganui. Magnetite 54·00, Titanite 13·00, Olivine, Augite, and Quartz 33·00.
- 15 Motueka. Magnetite 39·00, Hematite 32·5, Garnet, Ruby, Quartz, Olivine 34·50.
- 16 Tuapeka, Nelson. Hematite 92·88, Magnetite 2·24, Quartz and Slate 4·88, also a little Gold.
- 17 Hooper's Inlet, Otago. Titanite 74·28, Magnetite 20·00, Quartz with Garnet 5·72.
- 18 Rogers' Run, Maitāwhiri. Titanite 70·09, Magnetite 9·8, Quartz and Olivine 19·30.
- 19 Kiwi River. Titanite 64·68, Magnetite 4·42, Quartz, Garnet, and Gold 34·90.
- 20 Mahinipoa Lake, Hokitika. Titanite 58·00, Quartz and Slate 42·00.
- 21 Stewart's Island. Titanite 40·60, Magnetite 12·20, Quartz, Hornblende, Garnet, Gold, and Platinum 47·20.

- 22 Kakanui, Otago.
- 23 Rogers' Stream, Mataura.
- 24 Parapara. Contains Rutile, Brookite, Garnet, Pyrites, Iron, and Gold.
- 25 Kikowakarere Bay, Coromandel.

Specimens of Prepared Sand and Clay, used by Messrs. Smith and Atkinson in their patent process for smelting Iron Sand, with samples of Iron and Steel obtained from the Taranaki Sand.

Specimens of Gem Sand. Moeraki, Otago.

#### MANGANESE GROUP.

- 1 Braunite (Sesquioxide of Manganese). Malvern Hills, Canterbury.
- 2 Rhodonite (Silicate of Manganese). Dunstan, Otago.
- 3 Manganese and Iron Sand. Green Island, Otago.
- 4 Wad. Port Hardy, D'Urville's Island.

#### COPPER GROUP.

- 1 Native Copper. Moke Creek, Otago.
- 2 Native Copper, with Malachite and Calc-spar. Moke Creek, Otago.
- 3 Native Copper. Otea, Great Barrier Island.
- 4 Native Copper, with Red Oxide.
- 5 Azurite (Blue Carbonate of Copper). Otea, Great Barrier Island.
- 6 Chalcopyrite (Copper Pyrites). Otea, Great Barrier Island.
- 7 Chalcopyrite. Kauranga, Auckland.
- 8 Cuprite (Red Oxide of Copper). Dun Mountain, Nelson.
- 9 Fahlore (Grey Copper). Rolling River, Nelson.
- 10 Fahlore (Grey Copper). Wangapeka, Nelson.
- 11 Cupiferous Schist. Moke Creek, Otago.
- 12 Cupiferous Schist. Moke Creek, Otago.
- 13 Diorite Block, in a Copper lode. Otea, Great Barrier Island.

- 14 Serpentine, with Oxide of Copper. Dun Mountain, Nelson.
- 15 Gossan of a Copper lode. Dun Mountain, Nelson.
- 16 Copper Ore, prepared for the market. Otea Company, Great Barrier Island.

#### CHROMIUM GROUP.

- 1 Chrome Ore, showing surface decomposition. Dun Mountain, Nelson.
- 2 Dunite, interspersed with Crystals of Chrome Ore. Dun Mountain, Nelson.
- 3 Chrome Ore, interspersed with Dunite. Dun Mountain, Nelson.
- 4 Chrome Ore, occurring in bands in Dunite. Dun Mountain, Nelson.
- 5 Massive Chrome Ore. Dun Mountain, Nelson.
- 6 Crystallized Chromate of Iron. Nelson.
- 7 Chrome Ore. Aniseed Valley.
- 8 Preparations from Chrome Ore.  $\left\{ \begin{array}{l} a. \text{ Chromate of Lead.} \\ b. \text{ Chromate of Potash.} \\ c. \text{ Chrome Alum.} \\ d. \text{ Sub-chromate of Lead.} \end{array} \right.$

#### LEAD GROUP.

- 1 Galena (Sulphide of Lead), in Quartz, associated with Iron Pyrites. Rolling River, Nelson.
- 2 Galena, interspersed with Copper Pyrites, in Quartz. Otea, Great Barrier Island.
- 3 Galena, interspersed through Quartz. Tararu Creek, Thames, Auckland.
- 4 Mimetesite (Arseniate of Lead.) Dun Mountain, Nelson.

#### MISCELLANEOUS.

- Stibnite. Thames, Auckland.
- Dufrenoyite (Sulphides of Lead and Arsenic), in Diorite. Mine Bay, Great Barrier Island.
- Zinc Blend (Sulphide of Zinc). Tararu Creek, Auckland.
- Phosphate of Alumina. Stewart's Island.

Taranakite (New Mineral)—Hydrated Phosphate of Alumina. Sugar Loaves, Taranaki.  
 Fragments of Quartz, with Crystals of Barytes.  
 Silver Ore. Silver Crown Claim, Thames.

Scheelite (Tungstate of Lime). Maori Point, Dunstan, Otago.

- 1 Scheelite, prepared for decomposition by pulverization and levigation.
- 2 Scheelite, decomposed by hydrochloric acid, the tungstic acid being thereby liberated and the lime removed.
- 3 No. 2 treated with ammonia, to remove the liberated tungstic acid from the impure ore, and the resulting Tungstate of Ammonia crystallized.
- 4 No. 3 ignited, the ammonia being thus expelled, the pure Tungstic Acid remains.
- 5 Tungstate of Soda, used as a mordant in lieu of the stanates.
- 6 Tungstate of Soda, occasionally used as a substitute for white lead.
- 7 Black Oxide of Tungsten, proposed as a substitute for Plumbago.
- 8 Black Oxide of Tungsten, prepared by the sudden refrigeration of the acid.

## SELECTED SPECIMENS OF GOLD AND GOLD-BEARING QUARTZ.

### ALLUVIAL GOLD.

- 1 Fine Gold dust, with Platinum. Southland.
  - a. Iron and Platinum dust. Southland.
  - b. Platinum dust. Southland.
- 2 Shotty Gold, in Black Sand. Cornish Reef, Otago.
- 3 Fine Scaly Gold. Moeraki, Otago.
- 4 Fine Flaky Gold. Haast River.
- 5 Scaly Gold. Okarita Beach.
- 6 Fine Gold dust. Mikanui Beach.
- 7 Coarse Scaly Gold. Totara River.
- 8 Lemon-tinted Scaly Gold. Donaghues.

- 9 Dull Coarse Scaly Gold. Ross, Canterbury.
- 10 Dull Coarse Scaly Gold. Ross.
- 11 Very dark orange-colored Thin Flaky Gold. Hoho, Hokitika.
- 12 Shotty Gold. Hoho, Hokitika.
- 13 Light Scaly Gold. Teremakau.
- 14 Scaly Gold, in Black Sand. Wangapeka, Nelson.
- 15 Scaly Gold. Grey River, Nelson.
- 16 Shotty Gold. Canoe Creek, West Coast, Nelson.
- 17 Shotty Gold. Antonio's Flat, Big Grey River, Nelson.
- 18 Coarse Nuggety Gold. Moonlight Creek, Grey River.
- 19 Scaly Gold. Lardi, Little Grey, Nelson.
- 20 Gold, in flat nuggets. Greenstone River.
- 21 Shotty Gold. Taipo.
- 22 Thin Flaky Gold. Kanieri Terrace.
- 23 Nuggets. Greenland Hill.
- 24 Nuggety Gold, with Black Sand. Karamea, Diamond Lake.
- 25 Fine Scaly Gold, in sand. Darkies' Terrace, Cobden.
- 26 Rolled Nuggety Gold. Wakamarina, Marlborough.
- 27 Fine Gold dust. Ohau River, Tararua Range, Wellington.
- 28 Fine Gold dust. Wellington.
- 29 Gold dust. Oterangi Creek, Cape Terawiti, Wellington.
- 30 Fine Shotty Gold dust. Waireka Creek, Wellington.
- 31 Fibrous Gold. Thames, Auckland.
- 32 Fibrous Gold. Tapu Creek, Auckland.
- 33 Gold blowings. Greymouth.
- 34 Gold blowings. Haast River.
- 35 Gold blowings. Tuapeka.
- 36 Tailings. Ross.
- 37 Shotty Gold. Totara, Ross.



## REEF SPECIMENS.

- 38 White Crystalline Auriferous Quartz. Shetland Reef, Waipori, Otago.
- 39 Auriferous Shattered Quartz. Bridge Reef, Waipori, Otago.
- 40 Auriferous Friable Quartz. Bridge Reef, Waipori, Otago.
- 41 Auriferous Compact White Quartz. Shetland Reef, Waipori, Otago.
- 42 Auriferous Quartz, showing slickenside. Criterion Reef, Arrow, Otago.
- 43 Gold Quartz. Shotover, Otago.
- 44 Grey Quartz, with Gold. Skipper's Reef, Shotover, Otago.
- 45 Auriferous Quartz. Waipori, Otago.
- 46 Grey Auriferous Quartz. Arrow, Otago.
- 47 Quartz, with Gold and Antimony. Mullochy Gully, Otago.
- 48 Quartz, with Gold. Skipper's Reef, Otago.
- 49 Conglomerate, with Gold. Aorere River, Nelson.
- 50 Auriferous Quartz, (yields 13 dwts. per ton.) Wainui-o-mata.
- 51 Rich specimen of Quartz. Ohinemuri, Auckland.
- 52 Argentiferous Gold, from Vein Quartz. Thames, Auckland.
- 53 Argentiferous Gold, from bed rock. Thames, Auckland.
- 54 Nearly pure Silver, extracted from vein rock. Thames, Auckland.
- 55 Silver and Gold, from tailings. Thames, Auckland.
- 56 Leaf Gold, in decomposed Quartz. Mariner's Claim, Thames.
- 57 Brown Auriferous Quartz. Hunt's Claim, Kuru-nui Creek, Thames.
- 58 White Quartz, with Gold and Pyrites. Full Moon Claim, Tapu Creek.
- 59 White Crystalline Quartz, containing Gold, Silver, Lead, Antimony, Copper, and Iron. Junction Claim, Moanataiari Creek.

- 60 Quartz, containing upwards of 2200 oz. of Gold per ton. Golden Crown Claim, Thames.
- 61 Quartz, containing Copper and Iron Pyrites, and yielding 683 oz. of Gold per ton. Thames.
- 62 Quartz vein, in Tufa, showing two feeders and the Gold at the point of junction. Star of the North Claim, Thames.
- 63 Auriferous Crystalline Quartz. Golden Crown Claim, Thames.
- 64 Rich Brown Quartz. Barry's Claim, Kurunui Creek.
- 65 Gold specimen, arborescent, also showing faces of cubes, triakis-hexahedron and octahedron. Tapu Creek.
- 66 Massive Gold, from alluvial wash. Tapu Creek.
- 67 Nugget of Gold. Said to have been found by Natives, at Waitotara, Wanganui.

## COALS.

## AUCKLAND PROVINCE.

- 1 Bituminous Coal. Kawa Kawa.
- 2 Pitch Coal. Whangarei.
- 3 Hydrous Non-caking Brown Coal. Drury.
- 4 Pitch Coal. Kaiou River, Whangarei.
- 5 Brown Coal. Middle Waikato.
- 6 Coal. Walton Mine, Whangarei.
- 7 Bituminous Anhydrous Coal (Cakes). Kawa Kawa.
- 8 Iridescent Coal. Kawa Kawa.

## NELSON.

- 10 Pitch Coal. Upper Buller River.
- 11 Jet Coal. Jenkins Mine.
- 12 Bituminous Anhydrous Coal (Cakes). West Whanganui.
- 13 Earthy Coal. Pakawau.
- 14 Bituminous Coal (Outcrop). Coalbrook Dale.

- 15 Semi-Bituminous Coal. West Whanganui.
- 16 Bituminous Coal. Pakawau (Weisenhavern 4 ft. seam).
- 17 Bituminous Coal. Pakawau (5 ft. seam).
- 18 Bituminous Coal. Aorere River (1 ft. seam).
- 19 Bituminous Coal. Mt. William.
- 20 Bituminous Coal. 7 ft. seam, Pakawau.
- 21 Bituminous Coal. Coalbrook Dale.
- 22 Bituminous Coal. Coalbrook Dale, Buller River (9 ft. seam).
- 23 Brown Coal. Mokau River.
- 24 Ferruginous Coal. Batten River.

## WESTLAND.

- 25 Brown Coal. New Drive, Brighton.
- 26 Bituminous Coal. Grey River.

## CANTERBURY.

- 27 Brown Coal. Motanau.
- 28 Massive Brown Coal. Canterbury Colliery.
- 29 Brown Coal, altered by contact with Igneous rocks. Rakaia Gorge.
- 30 Anthracite, formed from Brown Coal, by contact with Igneous rocks. Rakaia Gorge.
- 31 Bituminous Coal. Malvern Hills.
- 32 Coal, passing into Anthracite. Kawhai River.
- 33 Coal, passing into Anthracite. Selwyn River.
- 34 Bituminous Coal. Kowhai.

## OTAGO.

- 35 Carbonaceous Shale. Caddon Hill.
- 36 Lignite. Ida Burn.
- 37 Brown Coal. Oamaru.
- 38 Pitch Coal. Shag Point.
- 39 Pitch Coal. Shag Point.

- 40 Hydrous Non-caking Brown Coal. Clutha River.
- 41 Coal. (Sea level.) Waikawa.
- 42 Semi-Bituminous Coal. Waikawa.
- 43 Brown Coal. Preservation Inlet.
- 44 Brown Coal. Preservation Inlet.
- 45 Semi-Bituminous Coal. Preservation Inlet.

## SOUTHLAND.

- 46 Brown Coal. Reneker's Run.
- 47 Brown Coal. Holt's Run.
- 48 Brown Coal. Howell and Stevens' Run.
- 49 Brown Coal. Takitimos (Taylor's Creek).
- 50 Cannel Coal.
- 51 Botryoidal Coal. Morley Creek.

## OUTLYING ISLANDS.

- 52 Lignite. Rapa Island.
- 53 Bituminous Mineral. Kangaroo.
- 54 Bituminous Mineral. Owhega, Chatham Islands.

## MISCELLANEOUS.

- 55 Charcoal, formed by lava. Mount Edgecombe.
- 56 Very light friable Coke, made from Buller Coal.
- 57 Imperfect Coke, from Kawa Kawa Coal.
- 58 Residue, after subjection to Coking process, from Waikato Coal.
- 59 Residue, from Clutha Coal.
- 60 Residue, from Shag Point Coal.
- 61 Hard Bright Silvery Coke. Buller Mine.
- 62 Large blocks Bituminous Coal. West Whanganui.
- 63 Block of Bituminous Coal. Buller River.
- 64 Block of Anthracite. Acheron River, Canterbury.
- 65 Market Coal. Brunner Mine.
- 66 Two large blocks Bituminous Coal. West Whanganui.
- 67 Two pieces Bituminous Coal. Pakawau Mine.

## SULPHUR.

## WHITE ISLAND.

- 1 Gypsum, in thin oblique prisms, slightly incrustated with Sulphur.
- 2 Fibrous Radiating Selenite, with disseminated Sulphur.
- 3 Massive Stalagmitic Selenite, with Sulphur disseminated through the mass.
- 4 Pure Massive Sulphur.
- 5 Sulphur, on a mass of Gypsum, crystallized in acute rhombic pyramids, sometimes double.
- 6 Massive Selenite, with disseminated Sulphur.
- 7 Pink Selenite.
- 8 Botryoidal Fibrous Selenite, deposited on Rhyolite Sand.
- 9 Selenite, in thin right oblique prisms, slightly incrustated with Sulphur.
- 10 Pure Amorphous Sulphur.
- 11 Radiated Gypsum, mixed with Sulphur.
- 12 Pure Amorphous Sulphur.
- 13 Soft White Acicular Selenite.
- 14 Gypsum, in thin oblique prisms.
- 15 Fibrous Selenite.
- 16 Intimate mixture of Sulphur and Gypsum.
- 17 Pure Sulphur.
- 18 Mass of Pure Amorphous Sulphur.
- 19 Crystallized Selenite, the Sulphur forming veins between the crystals.
- 20 Pure Massive Sulphur.
- 21 Intimate mixture of Sulphur and Selenite.
- 22 Radiating Fibrous Selenite, with very minute acicular crystals in the centre.
- 23 Radiating Reniform Selenite.
- 24 Decomposed Rhyolite, with Sulphur.
- 25 to 33 Selenite of different forms, variously incrustated with Sulphur, and constantly eliminating Free Sulphuric Acid.

## NEW ZEALAND ROCKS.

### GEOGRAPHIC ARRANGEMENT.

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#### PROVINCE OF AUCKLAND.

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##### THAMES DISTRICT.

##### TARARU CREEK.

- 1 Porphyry Dyke Stone.
- 2 Porphyry. Tramway Cutting.
- 3 Decomposed Porphyritic Tufa. Outcrop of Duke's Motto Claim.
- 4 Decomposed Tufa, lies under the Undecomposed Tufa. Duke's Motto.
- 5 Porphyritic Tufa, occurs as a "Bar." Duke's Motto.
- 6 Zinc Blende.
- 7 Greenstone Breccia. Tramway Cutting, next below the junction with Tinker's Gully.
- 8 Fragment of an old Greenstone Breccia, which has been broken up to form No. 7.
- 9 Calcite, occurring on the edges of the joints in the Breccia No. 7.
- 10 Melaphyre. Below Russell's Mill.
- 11 Cavernous Quartz, with Mundic. Mississippi reef, above the Junction.
- 12 Tufaceous Greenstone Breccia, decomposed by infiltration of water. Cutting for Russell's Mill Race.
- 13 Undecomposed Breccia, a part of No. 12.

- 14 Bed of Highly Pyritous Felspar Porphyry, occurring in the Breccia, half a mile above the Star of Polynesia Claim.
- 15 Barren Quartz Reef. Bed of the Creek.
- 16 Hardened Tufa. Bed of the Creek.
- 17 Amorphous Quartz. A bed, one mile above the Star of Polynesia.
- 18 Decomposed Tufaceous Sandstone. Bed rock of the creek, a little above No. 17.
- 19 Pyritous Tufaceous Sandstone. Bed rock above No. 18.
- 20 White Plastic Clay, derived from the decomposition of Tufa, by infiltration of water when not exposed to the direct action of rain. Near No. 19.
- 21 Sandstone, with Quartz veins. A little below the Heart and Hand Claim.
- 22 Non-auriferous Quartz. Heart and Hand Claim.
- 23 Auriferous Quartz. Scottish Chief leader.
- 24 Jasper. Picked up in the bed of the stream.
- 25 Specimen, showing decomposition of the Tufa. Upper Tararu.
- 26 Melaphyre.

TINKER'S GULLY. (A branch of Tararu Creek.)

- 27 Pyritous Rock, showing the progress of oxidation from the exterior by concentric rings. Look-out Rocks, highest point of the range between Tinker's Gully and Karaka Creek.
- 28 Compact Tufa. Just below the second waterfall.
- 29 Pyrites, from a leader. About half way down the gully.
- 30 Quartz vein, non-auriferous. From a claim, a few hundred yards up the gully.
- 31 Trachyte. Same place as No. 30.
- 32 Great Black Reef, (the color is due to Sesquioxide of Manganese.) Lady Bird Claim.
- 33 Porphyritic Tufa, forms high walls at the entrance of the gully.

## OPITOMOKO, OR WATERFALL CREEK.

- 34 Porphyry Sandstone. Scotchman Claim.
- 35 Porphyritic Sandstone (partially decomposed).  
Silver Crown Claim.
- 36 Tufaceous Sandstone (decomposed). Silver Crown.
- 37 Galena and Silver Ore. Silver Crown.
- 38 Saccharoid Quartz, with Ferric oxide. Silver  
Crown.

## PUKIHINĀU, OR SHELLBACK CREEK.

- 39 Diorite Breccia. Near Clarkson's Battery, Wiseman's Gully.
- 40 Crystalline Sandstone. Near Clarkson's Battery, Wiseman's Gully.
- 41 Timazite. John o' Groat, No. 2, Wiseman's Gully.
- 42 Diorite Sandstone. John o' Groat, No. 1, Wiseman's Gully.
- 43 Greenstone Porphyry. Heart and Hand Claim, Wiseman's Gully.

## KURUNUI CREEK.

- 44 Wall, middle level. Kurunui Company.
- 45 Cross course between Barry's reef and middle leader. Kurunui Company.
- 46 Middle leader, 20 fathom level. Kurunui Company.
- 47 Sandstone, from 20 fathom level. Kurunui Company.
- 48 Trachyte Tufa, bed rock. Hunt's Claim.
- 49 Trachyte Tufa, with small Quartz leader. Hunt's Claim.

## MOANATAIARI CREEK.

- 50 Compact Diorite Sandstone. Caledonian Company's shaft.
- 51 Vesicular Diorite, enclosing Slate fragment. Caledonian Company's shaft.
- 52 Soft Tufa Mudstone, with Chlorite and Pyrites. Caledonian Company's shaft.



- 53 Diorite Sandstone. Second platform on the tramway.
- 54 Diorite Sandstone. Point Russell.
- 55 Diorite Sandstone. Point Russell.
- 56 Crystallized Quartz. Point Russell.
- 57 Decomposing Dolerite. Cutting for No. 11 platform.
- 58 Coarse grained Tufa Mudstone. Bendigo Independent.
- 59 Compact Melaphyre, with vein of Calcite and Pyrites. Bendigo Independent.
- 60 Trachyte Tufa.

## PONGA FLAT.

- 61 Slate, with Calcite and Pyrites. El Dorado Claim.
- 62 Pyrites. El Dorado Claim.
- 63 Calcite, with Pyrites.
- 64 Crystallized Quartz, encrusted with Pyrites.
- 65 White Crystallized Quartz.
- 66 Smoky Quartz, in crystals.

## WAIOTAHU CREEK.

- 67 Roof of leader in 50 ft. level. United Company's shaft.
- 68 Foot wall of leader in 50 ft. level. United Company's shaft.
- 69 Calcareous Diorite Sandstone (decomposing). Seventy or eighty yards above the United Company's shaft.
- 70 Ferruginous Quartz. Bachelor's Claim.
- 71 Crystalline Diorite Sandstone. (Timazite?) A drive seventy feet into the hill towards the Karaka, and near the Golden Age battery.
- 72 Calcareous Diorite Sandstone (Pyritous). New Moon Claim, from a drive towards the Moanataiari.
- 73 Diorite Sandstone. New Moon Claim.
- 74 Trachyte Tufa Sandstone. Half Moon Claim, drive towards the Karaka.

- 75 Fissure, filled with Quartz fragments, cemented together. Queen Claim.
- 76 Tufa Sandstone.
- 77 Diorite Sandstone.
- 78 Trachyte Sandstone.
- 79 Crystallized Quartz.
- 80 Junction of Timazite and Dolerite. Freeman's Bay Claim.
- 81 Dolerite, with Opal. Freeman's Bay Claim.
- 82 Close grained Compact Dolerite. Freeman's Bay Claim.
- 83 Sandstone. Found in a cutting on the hill above Weston's Battery.

## KARAKA CREEK.

- 84 Trachyte Breccia. Pretty Mary Claim.
- 85 Calcareous Diorite Sandstone. Above the first bridge.
- 86 Calcareous Diorite Sandstone. Adjoins the last, of which it is a variety in texture.
- 87 Chlorite Schist with Garnet, enclosed in the Tufa below the Prosperity Claim.
- 88 Pyritous Tufa, with Quartz vein. A few yards above the Prosperity Claim.
- 89 Slightly Brecciated Tufa, with a thin facing of Calcite. Union Jack drive.
- 90 Decomposed Dolerite. Road cutting, above the Union Jack Claim.
- 91 Dolerite. Road cutting, a little below the fork where the Lucky Hit gully branches off.
- 92 Tufaceous Sandstone. Occurs about one hundred yards up the Lucky Hit gully.
- 93 Radiating Crystallized Quartz. Greenstone Claim.
- 94 Crystallized Quartz, with Pyrites. Greenstone Claim.
- 95 Quartz. Lucky Hit Claim.
- 96 Trachyte Breccia.
- 97 Trachyte Breccia.
- 98 Diorite Sandstone.

## HAPE CREEK.

- 99 Three specimens of Trachyte Diorite, all from the same place, but varying in color and texture. Morning Sun Claim.
- 100 Trachyte Dyke.
- 101 Fine grained Tufaceous Sandstone. Tramway cutting.
- 102 Siliceous Tufa, with a band of Bole. Tramway cutting.
- 103 Trachyte Breccia. Tramway cutting.
- 104 Green Trachyte. Tramway cutting.
- 105 Argillaceous Tufa Breccia. Tramway cutting.
- 106 Breccia. Tramway cutting.
- 107 Quartz and Lime Breccia. Black Eagle Claim.
- 108 Breccia, with Fossil Wood. Tramway cutting.

## GOLDEN CROWN CLAIM.

- 109 Day level roof.
- 110 No. 1 gallery, below the day level, roof.
- 111 No. 1 gallery, below the day level, foot wall.
- 112 Pyritous bands, in No. 1 gallery.
- 113 Present lowest level, roof.
- 114 Present lowest level, foot wall.
- 115 Engine shaft, at 16 fathoms, stone.
- 116 Engine shaft, at 16 fathoms, leader.

## LONG DRIVE CLAIM.

- 117 North Leader.
- 118 Black greasy substance (when fresh). Said to indicate Gold by its presence. Taken from the north leader.
- 119 Foot wall of north leader.
- 120 Pyrites, from the shaft, 30 ft. below the adit level.
- 121 Leader, in the shaft.
- 122 South end of the workings.
- 123 Tufa, from the south of the workings.
- 124 Dead stone, which occurs in patches, and in which Gold is never found.

## TARARU POINT.

- 125 Slate.
- 126 Slate.
- 127 Indurated Claystone (Pyritous).
- 128 Indurated Claystone (Pyritous).
- 129 Pyritous Quartz Sandstone, occurring cutting through the Claystone.
- 130 Tufa, containing splinters of Slate. Mouth of Waiohanga Creek.
- 131 Indurated Sandstone. Beach mouth of Shellback.
- 132 Basalt boulder, in the Tufa. Puriri.
- 133 Iron Pyrites. Waiomi.
- 134 Tufa bed rock of German Claim.

## TAPU CREEK DISTRICT.

- 1 Tufa. Digger's Rest Claim.
- 2 Tufa. Top of the hill above Tapu Gold Mining Company's Claim.
- 3 Decomposed Tufa. Top of the hill above Tapu Gold Mining Company's Claim
- 4 Decomposed Diorite Tufa. Just above the Tapu Gold Mining Company, No. 3 gully.
- 5 Decomposed Slate. North side of the Tapu Gold Mining Company.
- 6 Reef Stone. Tapu Gold Mining Company.
- 7 Quartz Breccia, with Pyrites. Tapu Gold Mining Company.
- 8 Decomposing Slate, east of the reef. Tapu Gold Mining Company.
- 9 Roof of leader (Decomposed Slate). Tapu Gold Mining Company.
- 10 Auriferous Mullock. Tapu Gold Mining Company.
- 11 Partially decomposed Slate. Buckland's tramway.
- 12 Foot wall. Little Jessie Claim, No. 3 gully.
- 13 Altered Slate, with Quartz vein. Prospector's Claim, Golden Point.
- 14 Silicated Tufa. White Horse Claim.
- 15 Pyrites, with Chert. Boar's Head Claim.

- 16 Quartz, showing a Slickenside. Gillan's Claim.
- 17 Decomposed Diorite. Bed rock of Gillan's Claim.
- 18 Quartz, on Tufa. Hit or Miss Claim.
- 19 Quartz, with Felspar. Hit or Miss Claim.
- 20 Decomposed Tufa. Golden Anchor Claim, Whalebone Creek.
- 21 Decomposed Diorite. Harbor View Claim.
- 22 Timazite Dyke. Two hundred yards west of Buckland's Machine, bed of the creek.
- 23 Diorite. North Head, on the coast at Hastings.
- 24 Decomposed Diorite. South Head, Hastings.
- 25 Slate, with Pyrites. Bed of the creek.
- 26 Slate. Bed rock of Tapu Creek.
- 27 Laterite.
- 28 Slate.
- 29 Tufa Breccia. South of Hastings.
- 30 Chert, with Chalcedony and Agate. Abounds on the beach.
- 31 Quartz, from a leader.

## COROMANDEL DISTRICT.

- 1 Partially Decomposed Diorite. Roof of Lode No. 5.
- 2 Pyritous Tufa. Keevin's Point.
- 3 Pyritous Tufa. Keevin's Point.
- 4 Diorite Tufa Breccia. Prospector's Claim.
- 5 Crystallized Quartz, with Pyrites. No. 5 Reef.
- 6 Pyritous Tufa. Bed rock, No. 5 Lode.
- 7 Quartz, with Pyrites and Mullock. Casing, No. 5 Lode.
- 8 Quartz Reef Cement. Coromandel.
- 9 Diorite Tufa. Bed rock, Commercial Claim.
- 10 Timazite. Between Waikawhau and Mata.
- 11 Auriferous Quartz. Murphy's Claim.
- 12 Trachyte. Pukawau Creek.
- 13 Indurated Clay. Pukawau Creek.
- 14 Dolerite Slate Breccia. Matawai Creek.
- 15 Coarse grained Diorite. Matawai Creek.
- 16 Fine grained Diorite. Matawai Creek.
- 17 Trachyte Porphyry. Castle Rock Range.

- 18 Rotten Sandstone. Bed rock, Golden Belt Claim, Tikei.
- 19 Quartz, with Gold. Golden Belt, Tikei.
- 20 Decomposed Breccia. Matawai Creek.
- 21 Slate. Matawai Creek.
- 22 Trachyte Tufa. Keevin's Point, Coromandel.
- 23 Trachyte Tufa Bed Rock of reefs. Keevin's Point.
- 24 Tufa, the brown stains caused by decomposition of Pyrites. Ring's Hill.
- 25 Tufa, with Pyrites. Roof, Erin's Hope Claim, Pukututu.
- 26 Auriferous Quartz. Leader, Erin's Hope Claim.
- 27 Pyritous Tufa. Foot wall, Erin's Hope Claim.
- 28 Decomposed Diorite. Peep of Day Claim, facing Kennedy's Bay.
- 29 Tufa, Roof of Leader. Peep of Day Claim.
- 30 Quartz Leader, stained with Oxide of Iron. Peep of Day Claim.
- 31 Tufa, impregnated with Silica and Pyrites. Brian Boru.
- 32 Tufa, with Marcasite. Harbor View Claim.
- 33 Diorite Tufa, foot wall. Harbor View Claim.
- 34 Basalt. North side of Kiko-waka-rere Bay.
- 35 Rotten Trachyte Tufa. North side of Kiko-waka-rere Bay.
- 36 Partially Decomposed Trachyte Tufa. North side of Kaiko-waka-rere Bay.
- 37 Trachyte Tufa. North side of Kaiko-waka-rere Bay.
- 38 Diorite Sandstone. East side of island off Omaru Bay.
- 39 Trap Basalt. West side of island off Omaru Bay.
- 40 Drusy Quartz. Coromandel.
- 41 Quartz Reef. Top of Mt. Tokatea.
- 42 Basalt. Between Wynarton and Keevin's Point.
- 43 Drusy Quartz. Coromandel.
- 44 Crystallized Quartz, in a reef. Preece's Point.
- 45 Trachyte Tufa. Preece's Point.
- 46 Amorphous Quartz. Beeson's Island.
- 47 Inferior Jasper. Preece's Point.

- 48 Trachyte Tufa. Preece's Point.
- 49 Quartz. Pukawau Creek.
- 50 Quartz. Pukawau Creek.

## MANUKAU NORTH HEAD DISTRICT.

(See *Trans. N. Z. Inst.*, Vol. ii.)

- 1 Breccia.
- 2 Altered Tufa.
- 3 Trachyte Porphyry.
- 4 Junction of Dyke with Rock.
- 5 Dolerite.
- 6 Jasperoid Quartz.
- 7 Tufaceous Sandstone.
- 8 Tufaceous Agglomerate.
- 9 Lava (Basaltic).

## AUCKLAND DISTRICT.

- 1 Volcanic Bombs. (See also on the floor.)
- 2 Incrustation in a cave, in Basaltic Lava. Three Kings.
- 3 Calcined Quartz, included in Lava.
- 4 Lava. Mount Eden.
- 5 Vesicular Tufa, top of crater wall. Rangitoto.
- 6 Trachyte Tufa. *Very* top of Rangitoto.
- 7 Trachyte Tufa, bottom of crater. Rangitoto.
- 8 Limestone.
- 9 Parnell Grit. Tamaki.

## BARRIER ISLANDS.

- 1 Slate Breccia, cemented by Quartz. Copper Mine, Great Barrier.
- 2 Trachyte Tufa, altered by being overflowed by a stream of Lava. Flat Island.
- 3 Trachyte Tufa. Tryphena, Great Barrier.
- 4 Trachyte Tufa, passing into Laterite. Kaiaraia, Great Barrier.
- 5 Diorite Sandstone. Great Barrier.
- 6 Felstone. Mine Bay, Great Barrier.

- 7 Pyritous Rock. Great Barrier.
- 8 Diorite. Needles Bay, Great Barrier.
- 9 Trachyte Tufa. Arid Island.
- 10 Indurated Magnesia Clay. Maungapiko, Great Barrier.
- 11 Peacock Copper Ore. Otea Copper Mine, Great Barrier.
- 12 Pumiceous Scoria. Ahumata, Great Barrier.
- 13 Granite. Mine Bay, Great Barrier.
- 14 Siliceous veins, in Tufa. Ahumata, Great Barrier.
- 15 Granite. Mine Bay, Great Barrier.
- 16 Trachyte Tufa. Whangaparapara, Great Barrier.
- 17 Silicified Slate. Mount Hobson, Great Barrier.
- 18 Quartz Porphyry. Harataonga, Great Barrier.
- 19 Pink Slate. Mount Young, Great Barrier.
- 20 Trachy-dolerite. Arid Island.
- 21 Recent Tufa. Little Barrier.
- 22 Tufa. Little Barrier.
- 23 Compact Trachyte. Little Barrier.
- 24 Vein, in Trachyte Tufa. Great Barrier.
- 25 Diorite Sandstone. Little Barrier.
- 26 Slate. Waikaro.
- 27 Vesicular Trachyte. Little Barrier.
- 28 Granular Trachyte. Little Barrier.
- 29 Altered Tufa. Little Barrier.
- 30 Trachy-dolerite Tufa. Hen.
- 31 Altered Tufa. Hen.
- 32 Altered Tufa. Hen.
- 33 Trachy-dolerite. Chicken.
- 34 Sandstone. Chicken.

## WHANGAREI DISTRICT.

- 1 Calc Spar. Limestone Island.
- 2 Limestone. Abbey Caves.
- 3 Limestone. South side of road to Maungatapere.
- 4 Flint. Kawa Kawa.
- 5 Compact Limestone. Razorback Range.
- 6 Grey Limestone. Limestone Island.
- 7 Chert, with Iron Pyrites. Whangarei.



- 8 Limestone. Skirt Rock, Coal Mine.
- 9 Palæozoic Schist. Whangarei.
- 10 Grey Sandstone. Shoal Bay.
- 11 Aphanite Slate. Munroe's Bay.
- 12 Sandstone. Phillips' Quarry.
- 13 Trachyte, with Garnets. Whangarei Heads.
- 14 Trachyte Porphyry. Point.
- 15 Trachyte. The Heads.
- 16 Fine grained Sandstone. Honimama.
- 17 Slate, under Coal measures. Walton's Mine.
- 18 Mica Trap. South of Munroe's Bay.
- 19 Compact Trachyte. Limestone Island.
- 20 Basalt Dyke. North of Munroe's Bay.
- 21 Gritstone, (North side of Dyke.) Munroe's Bay.
- 22 Trachyte. Manaia.
- 23 Felstone, with Mica. Shoal Bay.
- 24 Tufa. Manaia.
- 25 Cherty Slate, fundamental rock of the district.  
Whangarei.
- 26 Fine White Sand. North Cape.

- 1 Sandstone. Poverty Bay.
- 2 Shelly Limestone. Poverty Bay.
- 3 Calcspar. Whangape Lake, Waikato.
- 4 Diorite. Mercer, Waikato.

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## PROVINCE OF TARANAKI.

### MOUNT EGMONT.

- 1 Trachyte Lava. (6000 ft. Alt.) Mount Egmont.
- 2 Trachyte Tufa. (7000 ft. Alt.) Mount Egmont.
- 3 Hornblende Porphyrite. Gorge on Rocky River,  
Mount Egmont.
- 4 Trachyte Porphyry. (4000 ft. Alt.) Mount  
Egmont.
- 5 Trachyte Lava. (6000 ft. Alt.) Mount Egmont.
- 6 Trachyte Lava, weathered. (7000 ft. Alt.) Mount  
Egmont.

- 7 Hornblende Porphyrite. Gorge on Rocky River, Mount Egmont.
- 8 Trachyte Porphyry, fine grained. (4000 ft. Alt.) Mount Egmont.
- 9 Partially Decomposed Trachyte Tufa. (8000 ft. Alt.) Mount Egmont.
- 10 Trachyte Porphyry, fine grained. (4000 ft. Alt.) Mount Egmont.

## SUGAR LOAVES.

- 11 Trachyte Porphyry.
- 12 Compact Basalt.
- 13 Trachyte Breccia.
- 14 Trachyte Porphyry. Outer Sugar Loaf.
- 15 Dolerite.
- 16 Trachyte Lava.
- 17 Basalt.
- 18 Tufa (Breccia).
- 19 Trachyte Porphyry (partially decomposed.)
- 20 Felspar Porphyry.
- 21 Trachyte Lava (slightly Porphyritic).
- 22 Basalt.
- 23 Trachyte Porphyry.
- 24 Trachyte Lava.
- 25 Dolerite.
- 26 Trachyte Porphyry.
- 27 Basalt.
- 28 Trachyte Lava (slightly Porphyritic).
- 29 Trachyte Lava.
- 30 Basalt.
- 31 Trachyte Tufa.
- 32 Breccia.
- 33 Dolerite Lava.
- 34 Basaltic Lava.

## KAITAKI.

- 35 White Tufa (with Pyrites).
- 36 Tufa, with Free Sulphur.
- 37 Semi-fused Chert Breccia, with rhombic prisms of Calc-spar.

- 38 Hornblende Porphyry, showing the gradual oxidation from the exterior.
- 39 Hard Compact Tufa Breccia.
- 40 Blue Clay, or Mullock.
- 41 Diorite.
- 42 Argillaceous Tufa Sandstone.
- 43 Auriferous Pyrites.
- 44 Calcareous Tufa, containing Pyrites.

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### CENTRAL VOLCANIC DISTRICT.

#### WHITE ISLAND.

- 1 Basaltic Lava.
- 2 Basaltic Lava.
- 3 Argilo Trachyte Porphyry.
- 4 Obsidian. Mayor Island.
- 5 Obsidian Breccia. Mayor Island.

#### TAUPO LAKE, AND NEIGHBOURHOOD.

- 1 Red Trachyte.
- 2 Vesicular Obsidian, or Pumice Stone.
- 3 Vesicular Obsidian, or Pumice Stone.
- 4 Granitoid Trachyte.

#### TONGARIRO.

- 5 Basaltic Lava.
- 6 Tufaceous Breccia. Active Cone.
- 7 Basaltic Lava.
- 8 Trachyte Porphyry.

#### RUAPEHU, ONETAPU,—EAST BASE OF MOUNTAIN.

- 9 Trachyte Lava.
- 10 Vesicular Trachyte Lava.
- 11 Pumiceous Trachyte Porphyry.
- 12 Vesicular Trachyte Porphyry.
- 13 Pumiceous Trachyte Porphyry
- 14 Compact Trachyte Porphyry.
- 15 Argilo Trachyte Porphyry.
- 16 Argilo Trachyte Porphyry.

- 17 Pitchstone, like Rhyolite.
- 18 Pumiceous Trachyte Porphyry, with a seam of  
Compact Trachyte passing through it.
- 19 Scoriaceous Trachyte Porphyry.
- 20 Perlite-like Trachyte.

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### PROVINCE OF WELLINGTON.

- 1 Decomposed Diorite Sandstone. Beck's Tunnel.
- 2 Slate (with Pyrites). Wiohine Gorge.
- 3 Slate. Mungaroa.
- 4 Slate. Crossing place above Abbott's.
- 5 Sandy Nodules. Cliffs, Wanganui River.
- 6 Ferruginous Quartz. Wainui-o-mata.
- 7 Siliceous Conglomerate. Big slip, Petoni Road.
- 8 Sandstone. Otaki River.
- 9 Compact Syenite. Rimutaka.
- 10 Jasperoid Slate. Rimutaka.
- 11 Micaceous Sandstone. Upper Hutt.
- 12 Diorite Sandstone. Mount Victoria.
- 13 Decomposed Sandstone. Mount Victoria.
- 14 Limestone. Palliser Bay.
- 15 Quartz. Rimutaka.
- 16 Glauconite Sandstone, with Calc-spar. Whareama.
- 17 Quartzose Sandstone. Mungaroa.
- 18 Indurated Glauconite Sandstone. Castle Point.
- 19 Limestone. Matukona.
- 20 Micaceous Sandy Clay. Waitotara.
- 21 Indurated Clay. Whareama.
- 22 Pyritous Quartz. Petoni River.
- 23 Calcareous Breccia. Wellington.
- 24 Limestone. Hutt Road.
- 25 Calcareous Sandstone. Whareama.
- 26 Argillaceous Slate. Wanganui River.
- 27 Limestone. Wainui-o-mata.
- 28 Syenite. Makara.
- 29 Slate. Otaki.
- 30 Micaceous Schist. Waiho River.

- 31 Quartz, with Silicate of Magnesia, containing Graphite. Otaki River.
  - 32 Drift. Manawatu.
  - 33 Calc-spar. Whareama.
  - 34 Massive Quartz. Greaves' Gully, Wairarapa.
  - 35 Epidote. Wellington.
  - 36 Limestone. Kakariki.
  - 37 Saline Silt. Nine miles up Wanganui River.
  - 38 Gritstone. Waikanae.
  - 39 Quartz, with veins of Calc-spar. East of Sinclair Head.
  - 40 Siliceous Limestone. Waihikina.
  - 41 Indurated Clay.
  - 42 Jasperized Slate. Gorge of Manawatu.
  - 43 Glauconite Sandstone. Akitio.
  - 44 Graphite Slate. Palliser Bay.
  - 45 Pyritous Quartz.
  - 46 Schist. Kaimanawa Range.
  - 47 Calcareous Sandstone. Castle Point.
  - 48 Quartzose Slate. Kaimanawa Mountain.
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## PROVINCE OF NELSON.

- 1 Glauberite, with Chrome. Aniseed Valley.
- 2 Dunite, with Hypersthene. Aniseed Valley.
- 3 Cherty Slate, (three specimens.) Aniseed Valley.
- 4 Slate, with Annelid trails. Aniseed Valley.
- 5 Conglomerate. Aniseed Valley.
- 6 Hematite, with Silicate of Copper. Wind trap Gully. Dun Mountain.
- 7 Copper and Iron Ore. No. 3 Lode, Dun Mountain.
- 8 Dunite. Dun Mountain.
- 9 White Nephrite. Dun Mountain.
- 10 Calc-spar. Dun Mountain.
- 11 Wollastonite. Dun Mountain.
- 12 Albite vein. Dun Mountain.
- 13 Vein Hornblende, with Albite. Dun Mountain.
- 14 Altered Rock and Chrome. Dun Mountain.

- 15 Crystallized Wollastonite. Dun Mountain.
- 16 Copper Ore. Dun Mountain.
- 17 Olivine, with Veins of Chrome. Dun Mountain.
- 18 Vein of Hornblende. Dun Mountain.
- 19 Impure Hornblende. Dun Mountain.
- 20 Fine grained Syenite. Dun Mountain.
- 21 Serpentine Rock, with Silicate of Copper. Dun Mountain.
- 22 Felspathic Rock, with Oxide of Copper. Dun Mountain.
- 23 Anthophyllite, or Hypersthene. Dun Mountain.
- 24 Meerschaum. Dun Mountain.
- 25 Serpentine. Dun Mountain.
- 26 Asbestos, passing in Serpentine. Dun Mountain.
- 27 Asbestos. Dun Mountain.
- 28 Hematite. Dun Mountain.
- 29 Chrome Ore. Dun Mountain.
- 30 Massive Scapolite. Dun Mountain.
- 31 Quartz Breccia. Maitai Valley.
- 32 Triassic Slate. Maitai Valley.
- 33 Triassic Slate. Maitai Valley.
- 34 Triassic Slate. Maitai Valley.
- 35 Green Slate. Maitai Valley.
- 36 Slate. Wairoa Gorge.
- 37 Syenite. Wairoa Gorge.
- 38 Felstone, with Acicular Crystals. Wakapuaka.
- 39 Slate, with Fossils. Wakapuaka.
- 40 Syenite. Boulder Bank.
- 41 Laterite. Port Hardy, D'Urville's Island.
- 42 Clay Slate. D'Urville's Island.
- 43 Serpentine. Port Hardy, D'Urville's Island.
- 44 Indurated Clay Stone. Nelson.
- 45 Sandstone, Coal formation. Nelson.
- 46 Gritstone, Coal formation. Nelson.
- 47 Limestone. Nelson.
- 48 Felspathic Porphyry. Waingororo River.
- 49 Diorite. Batten River.
- 50 Contorted Slate. Batten River.
- 51 Schist. Batten River.
- 52 Rough Sandstone. Batten River.

- 53 Sandstone. Batten River.
- 54 Granite. Batten River.
- 55 Syenite. Batten River.
- 56 Slate. Loadstone Hill.
- 57 Bed Rock. Bedstead Gully.
- 58 Slate. Bedstead Gully.
- 59 Mica Schist. Summit of Takaka Range.
- 60 Quartzite. Takaka Range.
- 61 Garnet Schist. Takaka Range.
- 62 Fissile Slate. Takaka Range.
- 63 Limestone. Takaka Range.
- 64 Limestone. Takaka Range.
- 65 Granulite. Takaka Range.
- 66 Grit, from Coal seam. Mouth of Takaka.
- 67 Crystalline Limestone. Takaka Valley.
- 68 Gneiss. Anatoki River.
- 69 Calcareous Slate, with Mundie. Blue Creek.
- 70 Schist, (Bed Rock.) Blue Creek.
- 71 Granite. Riwaka Creek.
- 72 Serpentine. Mount Arthur.
- 73 Quartz. Mount Arthur.
- 74 Calcite, showing the effect of weathering. Mount Arthur.
- 75 Ferruginous Conglomerate. Dividing Range, Mount Arthur.
- 76 Felsite. Skeet River.
- 77 Galena. Wangapeka.
- 78 Galena, Mispickel, and Quartz. Wangapeka.
- 79 Slate. Lower Wangapeka.
- 80 Breccia. Upper Wangapeka River.
- 81 Metamorphic Slate. Wangapeka River.
- 82 Calcareous Grit. Wangapeka Caves.
- 83 Slate. Upper Wangapeka.
- 84 Hornblende. Riwaka Valley.
- 85 Granite. Riwaka.
- 86 Hornblende Rock. Riwaka.
- 87 Limestone. Cook's, Riwaka.
- 88 Slate, with Crystals of Chiastolite. Slate River.
- 89 Amygdaloidal Slate. Rolling River.
- 90 Slate, with Pyrites. Rolling River.

- 91 Limestone. Ellis Hill.
- 92 Limestone. Dart River.
- 93 Granite. Dart River.
- 94 Granite. Dart River.
- 95 Granite. Dart River.
- 96 Limestone. Tata Island, Massacre Bay.
- 97 Limestone. Tata Island, Massacre Bay.
- 98 Granite. Tata Island.
- 99 Granite. Tata Point.
- 100 Crystallized Limestone. Golden Gully.
- 101 Schist, Bed Rock. Omoeroa River.
- 102 Schist. Curtis River.
- 103 Schist, (Bed Rock.) Curtis Creek.
- 104 Mica Schist. Plumbago Hill.
- 105 Plumbago. Ruatanua.
- 106 Banded Chert. Ruatanua.
- 107 Stratified Marble. Ruatanua.
- 108 Marble. Ruatanua.
- 109 Marble. Ruatanua.
- 110 Marble. Ruatanua.
- 111 Fine grained Granite. Aorere River.
- 112 Coarse grained Granite. Aorere River.
- 113 Pink Granite. Aorere River.
- 114 Chert. Aorere River.
- 115 Bed Rock. Aorere River.
- 116 Conglomerate. Aorere River.
- 117 Argillaceous Sandstone. Tomatea.
- 118 Mica Gneiss. Tomatea.
- 119 Marble. Coal Creek, Collingwood.
- 120 Marble. Coal Creek, Collingwood.
- 121 Shale. Collingwood.
- 122 Shale. Collingwood.
- 123 Red Mica Shale. Collingwood.
- 124 Rounded Pebble, enclosed in the Coal. Colling-  
wood.
- 125 Schist. Waterfall, Collingwood.
- 126 Quartzite. Below the Waterfall, Collingwood.
- 127 Coarse Sandstone. Pakewau.
- 128 Granite, under the Coal. Waiharatea.
- 129 Slate. Seventeen-mile Beach.



- 130 Slate. Twelve-mile Beach.
- 131 Highly Micaceous Granite. Otahu, Grey River.
- 132 Conglomerate, overlying the Coal. Coalbrook Dale.
- 133 Conglomerate, under the Coal. Coalbrook Dale.
- 134 Conglomerate, under the Coal. Mount William.
- 135 Gritstone, Coal formation. Mount Rochfort.
- 136 Granite. Brunner Mine.
- 137 Micaceous Sandstone. Brunner Mine.
- 138 Micaceous Grit. Brunner Mine.
- 139 Micaceous Grit. Brunner Mine.
- 140 Micaceous Shale. Brunner Mine.
- 141 Black Mica, (Bzotite.) Brunner Mine.
- 142 Carbonaceous markings. Brunner Mine.
- 143 Timazite Dyke Rock. Brook Street Valley.

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#### COUNTY OF WESTLAND.

- 1 Granite, with excess of Mica. Kanieri, Hokitika River.
- 2 Granite, with White Felspar and Black Mica. Kanieri, Hokitika.
- 3 Granite. Kanieri, Hokitika.
- 4 Granite. Kanieri, Hokitika.
- 5 Granite. Kanieri, Hokitika.
- 6 Dunite, with Asbestos. Hokitika River.
- 7 Nephrite. Hokitika River.
- 8 Contorted Mica Schist. Kanieri, Hokitika.
- 9 Pebble. Hokitika.
- 10 Crystalline Sandstone. Kanieri.
- 11 Micaceous Slate. Hokitika.
- 12 Mica Schist. Kanieri.
- 13 Chlorite Schist. Kanieri.
- 14 Tremolite Slate. Kanieri.
- 15 Gneissic Schist. Kanieri.
- 16 Micaceous Slates. Kanieri.
- 17 Argillaceous Schist. Hokitika.
- 18 Crystalline Diorite. Kanieri, Hokitika.
- 19 Fine grained Granite. Okarita.
- 20 Granite. Okarita.

- 21 Marble, with Tremolite. Okarita.
- 22 Quartzose Mica Schist. Okarita.
- 23 Impure Nephrite. Okarita Bluff.
- 24 Diorite. Okarita.
- 25 Thin band of Diorite Sandstone, between Slate.  
Bluff, Okarita District.
- 26 Compact Mica Schist. Okarita.
- 27 Grauwacké Sandstone, with thin fragments of  
Slate. Okarita Bluff.
- 28 Slate. Okarita Bluff.
- 29 Clay Slate. Okarita.
- 30 Argillaceous Schist, with Quartz vein. Okarita.
- 31 Argillaceous Schist, with thin vein of Quartz.  
Okarita Bluff.
- 32 Metamorphic Micaceous Slate. Grey River.
- 33 Disthene Rock. Waiau River.
- 34 White Granite. Grey River.
- 35 Metamorphic Slate. Grey River.
- 36 Marlstone. Bluff, south of Awataikato Creek.
- 37 Granite.
- 38 Micaceous Schist. Waikukupa River.
- 39 Contorted Schists, with Garnets. Waikukupa  
River.
- 40 Schist, with Garnets. Waikukupa River.
- 41 Pink Granite. House roof Hill, West Whanganui.
- 42 Granitic Breccia. Buller River.
- 43 Red Granite. Buller River.
- 44 Gritstone. Waimongaroa.
- 45 Nephrite. West Whanganui.
- 46 Sandstone. South Head, West Whanganui.

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#### PROVINCE OF MARLBOROUGH.

- 1 Quartz, with Epidote. Havelock.
- 2 Variegated Schist. Havelock.
- 3 Iron Stone. Havelock.
- 4 Laterite. Havelock.
- 5 Schist. Havelock.
- 6 Clay Slate. Havelock.

- 7 Schist. Havelock.
- 8 Micaceous Shale. Massacre Hill, Wairau Valley.
- 9 Schist. Massacre Hill, Wairau Valley.
- 10 Schist. Massacre Hill, Wairau Valley.
- 11 Clay Stone. Awatere Valley.
- 12 Chert, with Calcite. Blairoch Hill, Awatere Valley.
- 13 Limestone. Blairoch Hill, Awatere Valley.
- 14 Grey Quartz. Mount Mouat, Awatere Valley.
- 15 Slate. Picton.
- 16 Schistose Phonolite. Picton.
- 17 Slate. Oyster Bay, Queen Charlotte Sound.
- 18 Slate, with Quartz laminae. Shakespere Bay.
- 19 Slate. Pelorus Sound.
- 20 Micaceous Schist. Tuamarina.
- 21 Trachyte. Squally Point.
- 22 White Jade. Motueka, Rangatotara.
- 23 Quartzose Schist. Forks of Wakamarina.
- 24 Diorite Sandstone (2500 ft. Alt.) Looker-on, Kaikoura.
- 25 Syenite (5000 ft. Alt.) Looker-on, Kaikoura.
- 26 Slate, with veins of Calcite (5000 ft. Alt.) Looker-on, Kaikoura.
- 27 Slate (7000 ft. Alt.) Looker-on, Kaikoura.
- 28 Porphyritic Basalt.
- 29 Amygdaloidal Basalt, (Quartz Amygdaloid.)
- 30 Micaceous Grit.
- 31 Pink Clay Stone.
- 32 Quartz Rock.
- 33 Silicified Wood.
- 34 Loose grained Sandstone.
- 35 Crystalline Limestone.
- 36 Calcite, formed over a Calcareous-mud centre.

#### AMURI BLUFF DISTRICT.

- 37 Conglomerate, above the Coal Sandstone. Amuri Bluff.
- 38 Compact Sandstone, (Glaucinite.) Inland from Amuri Bluff.
- 39 Septariam Limestone. Amuri Bluff.

- 40 Crystalline Limestone. Clarence River, Amuri.
- 41 Lithographic Limestone. Clarence River, Amuri.
- 42 Metamorphic Sandstone. Lower Gorge of Conway.
- 43 Sandy Clay. Amuri Bluff Section, Eastern side.
- 44 Calcareous Sandstone. Amuri Bluff Section, Eastern side.
- 45 Shelly Sandstone. Amuri Bluff Section, Eastern side.
- 46 Sand Mud, cementing Belemnites. Amuri Bluff Section, Eastern side.
- 47 Coarse Sandstone, containing Nephrite, Quartz, Slate, &c. Amuri Bluff Section, Eastern side.
- 48 Nodule, from Sandstone. Amuri Bluff
- 49 Clay Slate. Amuri Bluff.
- 50 Silicified Wood. Amuri Bluff Section, Western side.
- 51 Compact Limestone. Kaikoura Peninsula.
- 52 Compact Limestone. Kaikoura Peninsula.
- 53 Glauconite Sandstone. Conway.
- 54 Coarse grained Sandstone. Conway.
- 55 Chalky Limestone, with *Teredæ*. Conway Section.
- 56 Calcareous Mudstone. Conway.
- 57 Compact Dolerite. Conway.
- 58 Amygdaloidal Trachyte. Conway.
- 59 Rough Limestone, with Fossils. Mount Caverhill.
- 60 Chalky Limestone. Foot of Mount Caverhill.
- 61 Shelly Mudstone. Western foot of Mount Caverhill.
- 62 Fossiliferous Limestone. Western foot of Mount Caverhill.
- 63 Limestone Breccia. Jed Section.
- 64 Calcareous Mud. Jed Section.
- 65 Rottenstone, derived from Siliceous Limestone. Jed Section.
- 66 Sandstone, with black grains of organic matter. Jed Section.
- 67 Sandy Clay Stone. Jed Section.
- 68 Shelly Limestone. Gore Bay.
- 69 Chalky Limestone. Gore Bay.
- 70 Compact Grey Limestone. Gore Bay.

- 71 Soft Amorphous Limestone. Gore Bay.
- 72 Syenite. Mandamus.
- 73 Syenite. Mandamus.
- 74 Vesicular Felstone. Mandamus.
- 75 Trachyte. Mandamus.
- 76 Coal. Mandamus.

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## PROVINCE OF CANTERBURY.

### WAIPARA DISTRICT.

- 1 Tufa. Pakau.
- 2 Calcareous Sandstone. Pakau.
- 3 Calcareous Mudstone. Black Bush Creek, Pakau.
- 4 Granular Limestone, with Ferruginous Bands.  
Black Bush Creek, Pakau.
- 5 Aluminous Shale. Black Bush Creek, Pakau.
- 6 Crystalline Limestone. Black Bush Creek, Pakau.
- 7 Sandstone, with *Ostrea ingens*. Waipara.
- 8 Sandstone with Carbonaceous markings. Waipara.
- 9 Ferruginous Sandstone. Waipara.
- 10 Littoral Deposit, with *Ostrea* and other shells.  
Waipara.
- 11 Limestone, Compact and Crystalline. Waipara.
- 12 Greensand. Waipara.
- 13 Limestone, with Echinite spines. Waipara.
- 14 Syenite. Leslie Pass.
- 15 Amygdaloidal Trachyte. Leslie Pass.
- 16 Limestone, full of small black grains, probably  
Iron Sand. Marble Point.
- 17 Earthy Limestone, with Arragonite. Marble Point.
- 18 Dolerite, with Crystals of Labradorite. Lyndon  
Red Spur.
- 19 Altered Claystone. Lyndon Red Spur.
- 20 Trachyte Tufa. Counting Creek, Lyndon.
- 21 Calcareous Conglomerate, (Fossiliferous.) Mount  
Cookson.
- 22 Compact Limestone, (Fossiliferous.) Mount Cook-  
son.

- 23 Calcareous Conglomerate, (Fossiliferous.) Counting Creek, Lyndon.
- 24 Earthy Limestone, (Fossiliferous.) Culverden.
- 25 Crystalline Limestone. Culverden.
- 26 Compact Dolerite, with Labradorite. Culverden.
- 27 Crystalline Limestone. Culverden.
- 28 Quartz Sandstone. Mount Carrick, Culverden.
- 29 Crystalline Grey Limestone, with minute black grains. Isolated Hills.
- 30 Travertine. Isolated Hills.
- 31 Crystalline Limestone. Isolated Hills.

#### MOUNT COOK.

- 1 Indurated Sandstone, Calcareous.
- 2 Brecciated Sandstone.
- 3 Clay Slate, with tracks of Annelids.
- 4 Clay Slate, with veins of Calcite.
- 5 Clay Slate.
- 6 Indurated Sandstone, slightly Micaceous.
- 7 Indurated Silurian Sandstone.
- 8 Siliceous Schist.
- 9 Siliceous Schist.
- 10 Foliated Argillaceous Schist, with Quartz vein.
- 11 Foliated Sandstone, with Calcite vein.
- 12 Calcareous Sandstone (Tufaceous).
- 13 Altered Slate, with Calcite.
- 14 Quartzose Schist.
- 15 Vein of Calcite, in Indurated Sandstone.
- 16 Light grey Clay Slate.
- 17 Quartz Vein, in Slate.
- 18 Altered Slate, with Calc-spar.
- 19 Clay Slate.
- 20 Sandstone Breccia.
- 21 Indurated Sandstone.
- 22 Brecciated Slate.
- 23 Silicified Slate.
- 24 Altered Sandstone, with Iron Pyrites.
- 25 Serpentinous Slate.
- 26 Calc-spar, with Serpentine.

- 27 Siliceous Conglomerate.
- 28 Travertine.
- 29 Glacial deposit, formed by friction of the glacier on the rock bed.

## BANKS' PENINSULA AND OTHER DISTRICTS.

- 1 Quartzose Trachyte, with Garnets. Governor's Bay, Banks' Peninsula.
- 2 Trachyte Sandstone. Governor's Bay.
- 3 Hyperite. Mount Torlesse Range.
- 4 Diabase. Pincer's Point, near Hawkins, Malvern Hills.
- 5 Quartz Trachyte. Mount Misery, Malvern Hills.
- 6 Trachyte Porphyry. Northern foot, Mount Phillip.
- 7 Amygdaloidal Laterite. Mount Misery.
- 8 Compact Dolerite. Harper's Hill.
- 9 Vesicular Dolerite. Harper's Hill.
- 10 Pitch Opal, underlying the Vesicular Dolerite. Harper's Hill.
- 11 Ferruginous Quartz. Harper's Hill.
- 12 Decomposing Dolerite. Kowai, Malvern Hills.
- 13 Palagonite Tufa. Two Brothers, Hinds.
- 14 Conglomerate of small Pebbles, said to resemble the Diamond matrix of Brazil. Mount Misery.
- 15 Quartz Trachyte, with Garnets. Mount Somers, Weather Hill.
- 16 Pitchstone, with Felspar Crystals. Mount Somers.
- 17 Trachyte Tufa. Mount Somers.
- 18 Quartz Porphyry. Clent Hills.
- 19 Palla, (Deposit from Siliceous Springs.) Gawlor's Downs.
- 20 Palla. Gawlor's Downs, Ashburton.
- 21 Chert, stained with Iron. Gawlor's Downs.
- 22 Felspar Porphyry, (Pink Felspar Crystals.) Rangitata.
- 23 Amygdaloidal Tufa, with Heulandite. Rangitata.
- 24 Cavernous Quartz, with Calcite.
- 25 Quartz Trachyte.
- 26 Slaty Limestone.

- 27 Amygdaloidal Trap.
- 28 Clay Stone.
- 29 Ferruginous Quartz.
- 30 Quartz Vein, in Slate, both Slate and Quartz being interspersed with Pyrites and Calcite.
- 31 Calcite. Malvern Hills.
- 32 Calcareous Spar, with Serpentine. Malvern Hills.
- 33 Sandstone Conglomerate. Malvern Hills.
- 34 Calcareous Sandstone. Malvern Hills.
- 35 Glauconite Sandstone. Malvern Hills.
- 36 Marble. Malvern Hills.
- 37 Clay Stone. Malvern Hills.
- 38 Fissile Clay Slate, (Bed Rock.) McQueen's Saddle.
- 39 Quartz, (No. 1 Reef.) McQueen's Saddle.
- 40 Quartzose Tufa, (Bed Rock of No. 1 Reef.)
- 41 Diorite Dyke, 8 inches wide, in Tufa Porphyry. (No. 2 Reef.)
- 42 Rotten Quartz, (No. 4 Reef.)
- 43 Quartz, with Steatite. Green Reef, (No. 5.)
- 44 Calcareous Sandstone, slightly brecciated. Church Reserve, Selwyn River.
- 45 Common Slate. Saddle, Banks' Peninsula.
- 46 Banded Chert. Saddle, Banks' Peninsula.
- 47 Rotten Slate. Saddle, Banks' Peninsula.
- 48 Breccia Slate. McQueen's Saddle.
- 49 Indurated Clay Stone. McQueen's Saddle.
- 50 Obsidian. Gebbie's Pass, Banks' Peninsula.
- 51 Arragonite, from fissure in the Clay. Banks' Peninsula.
- 52 Quartz Reef. Rakaia Gorge.
- 53 Rock Crystal, passing into Amethyst. Rakaia Gorge.
- 54 Shale, altered by Dolerite Stream. Rakaia Gorge.
- 55 Arragonite. Hurunui.
- 56 Limestone. Hurunui.
- 57 Flint. Pudding Hill.
- 58 Dark colored Argillaceous Sandstone.
- 59 Shelly Sandstone.
- 60 Dark Chocolate colored Sandstone. Broken Point.
- 61 Auriferous Quartz.



- 62 Quartz Casts of a mineral which has since been removed by natural causes.
- 63 Diabase. Scally Creek.
- 64 Limestone. Upper Waiau.
- 65 Laminated Limestone. Clarence River.
- 66 Calcareous Sandstone. Mount Peel.
- 67 Calcareous Sandstone. Mount Somers.
- 68 Diorite. Clarke's Pass.
- 69 Diorite Porphyry. Waiau.
- 70 Red Marble.

## LYTTELTON TUNNEL.

- 1 Sandy Silt. 1.\*
- 2 Amygdaloidal Basalt. 9.
- 3 Dolerite, with Sanadine Crystals. IX.
- 4 Dolerite, with the Sanadine partly decomposed. 17D.
- 5 Basalt, with Crystals of Felspar. 20B.
- 6 Laterite. 23.
- 7 Aggregation of Calc-spar Crystals. 24A.
- 8 Trachy-dolerite. 28.
- 9 Argillaceous Trachyte Tufa. 29A.
- 10 Vesicular Trachyte Tufa. 29B.
- 11 Sanadine Crystals, in a fine grained Dolerite matrix. 32B.
- 12 Slate, with Carbonate of Lime. 44.
- 13 Dolerite, with Muller's Glass.
- 14 Basalt, with Crystals of Felspar and some Carbonate. 55B.
- 15 Amygdaloidal Trachy-dolerite. 56.
- 16 Compact Trachy-dolerite. 56B.
- 17 Clay Stone Breccia. 62.
- 18 Compact Dolerite, with Calcite in thin veins. 71.
- 19 Basaltic Lava. 76.
- 20 Compact Dolerite. 78.
- 21 Trachyte Porphyry. 82.
- 22 Decomposed Dolerite Conglomerate. 84.
- 23 Amygdaloidal Basalt. 85.

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\* These numbers refer to positions marked on Dr. Haast's section of the Rocks passed through in the excavation of the tunnel.

- 24 Labradorite, in Dolerite, as white crystals. 89A.
- 25 Labradorite, in Dolerite, as yellow crystals. 92B.
- 26 Chocolate colored Dolerite. 99.
- 27 Argillaceous Tufa. 140.
- 28 Junction between Trachy-dolerite and Trachyte Tufa. 158.
- 29 Compact Porphyritic Dolerite. 165.
- 30 Trachyte Breccia. 166.
- 31 Compact Dolerite, with Sanadine Crystals. 169A.
- 32 Argillaceous Tufa. 174.
- 33 Hard Basaltic Breccia. 176D.
- 34 Fine grained Dolerite. 181.
- 35 Dolerite, with Sanadine Felspar, partly decomposed. 186.
- 36 Vesicular Porphyritic Dolerite. 190A.
- 37 Vesicular Porphyritic Dolerite. 190e.
- 38 Vesicular Porphyritic Dolerite. 192A.
- 39 Porphyritic Dolerite. 197.
- 40 Partly decomposed Porphyritic Dolerite. 199.
- 41 Compact Dolerite, with Sanadine Crystals. 206A.
- 42 Decomposed Tufa, with Siderite. 222A.
- 43 Trachyte. 224.
- 44 Fine grained Dolerite. 226.
- 45 Dolerite, with Sanadine and Hornblende. 228e.
- 46 Trachyte Porphyry. 230.
- 47 Dolerite. 233A.
- 48 Scoriaceous Trachyte. 234.
- 49 Clay Stone Porphyry. 235.
- 50 Dolerite, with Arragonite. 242.
- 51 Clay Stone Porphyry. 244.
- 52 Clay Stone Porphyry. 246.
- 53 Fine grained Dolerite. 247.
- 54 Trachyte. 248.

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#### PROVINCE OF OTAGO.

Various Specimens of Zeolites, in Basalt. Dunedin.

- 1 Fine grained Granite. George's Sound, W. C.
- 2 White grained Granite. Pickersgill Harbour, W. C.

- 3 Porphyritic Granite. Anchor Island, Dusky Bay, W. C.
- 4 Coarse Red Granite. Preservation Inlet, W. C.
- 5 Syenitic Granite. Greenstone River, W. C.
- 6 Granite, with large Crystals of Muscovite. Mitre Point, Milford Sound, W. C.
- 7 Grey Granite. Goat Island, Chalky Inlet, W. C.
- 8 Junction of Gneiss with Granite. Facile Harbour, W. C.
- 9 Syenitic Gneiss, with Garnet. Metal Point, Milford Sound, W. C.
- 10 Junction of Diorite with Granite. W. C.
- 11 Biotite Granite. W. C.
- 12 Felspar, with Porphyry. George's Sound, W. C.
- 13 Syenitic Gneiss. W. C.
- 14 Garnet, in Quartz. Mitre Point.
- 15 Eurite (Felspar, Quartz, and Garnet) Vein, in Gneiss. North arm, Breaksea Sound, W. C.
- 16 Biotite. Doubtful Inlet, W. C.
- 17 Crystalline Quartz. W. C.
- 18 Calcareous Sandstone. Chalky Inlet, W. C.
- 19 Calcareous Grit. Cove Island, Preservation Inlet, W. C.
- 20 Slate, with Amygdaloids of Felspar. Hokuri Creek, Kakapo Lake, W. C.
- 21 Hornblende and Mica Rock. Dusky Bay, W. C.
- 22 Calcareous Sandstone. Chalky Inlet, W. C.
- 23 Massive Tremolite, with Nephrite. Milford Sound, W. C.
- 24 Calcareous Mudstone. Chalky Island, W. C.
- 25 Mica Schist. Duck Cove, W. C.
- 26 Calcite, in Granite. W. C.
- 27 Granite. Chalky Inlet, W. C.
- 28 Crystalline Limestone, with Flakes of Brown Mica. Crooked Arm, W. C.
- 29 Statuary Marble. W. C.
- 30 Statuary Marble, with Slate. Anita Bay, W. C.
- 31 Glossy Clay Slate. Garden Island, Chalky Inlet, W. C.
- 32 Indurated Slate. Chalky Inlet, W. C.

- 33 Crystals of Quartz, in Granite. Chalky Inlet, W. C.
- 34 Granular Limestone, with Mica. W. C.
- 35 Schist. Anita Bay, W. C.
- 36 Chlorite Schist. Mount Alta, Wanaka.
- 37 Indurated Shale. Kaka Point, W. C.
- 38 Contorted Clay Slate, with Quartz. Garden Island,  
Chalky Inlet, W. C.
- 39 Aphanite Slate. Bird Rocks, Katuku River,  
W. C.
- 40 Syenitic Gneiss. Dusky Bay, W. C.
- 41 Newer Gneiss. W. C.
- 42 Junction of Schist with Limestone. Shag Valley.
- 43 Crystalline Limestone. Shag Valley.
- 44 Limestone, with Felspar. Blue Mountains, Shag  
Valley.
- 45 Fibrous Slate. Round Hill.
- 46 Clay Stone. Round Hill.
- 47 Rolled Block of Quartzite. Round Hill.
- 48 Mica Schist. Morrison's Gully, Maniatoto Plain.
- 49 Micaceous Slate. Gabriel's Gully.
- 50 Decomposing Schist, under the old drift. Gabriel's  
Gully.
- 51 Grey Schist. Kakanui Gully.
- 52 Calcite Schist. Boat Harbour.
- 53 Contorted Grey Schist. Saddle Hill, Dunedin.
- 54 Compact Basalt. Saddle Hill.
- 55 Trachy-dolerite, with Labradorite. Dunedin.
- 56 Dendritic Oxide of Iron. Dunedin.
- 57 Scoriaceous Trachyte, with Felspar Crystals. Toma-  
hawk Bay, Dunedin.
- 58 Porphyritic Basalt. Tomahawk Bay, Dunedin.
- 59 Normal Basalt. Tomahawk Bay, Dunedin.
- 60 Calc-spar, in Basalt. Ocean Beach, Dunedin.
- 61 Tufa Sandstone (Semi-fused). Bell Hill.
- 62 Basalt, with Natrolite. Bell Hill.
- 63 Freestone. Oamaru.
- 64 Freestone, superficially hardened by Ransome's  
patent process. Oamaru.
- 65 Calcareous Conglomerate, with Arragonite. Oamaru  
Cape.

- 66 Massive Limestone, (nearly pure Carbonate of Calcium.) Oamaru.
- 67 Lithographic Limestone. Oamaru.
- 68 Limestone. Atkinson's Run, Oamaru.
- 69 Quartz Cement. (New Tertiary.) Kaikori Creek.
- 70 Olivine, in Vesicular Trachyte. Kaikori Vale.
- 71 Basalt, with Zeolite. Kaikori Station.
- 72 Rough Siliceous Sandstone. Trotter's Creek.
- 73 Clay Stone. Trotter's Creek.
- 74 Calcareous Sandstone. Hampden.
- 75 Calcareous Mudstone. Caversham.
- 76 Micaceous Clay. Mount Charles.
- 77 Dolerite. Mount Charles.
- 78 Veins of Calc-spar, in Schist. Mount Charles.
- 79 Siliceous Conglomerate, from a thin seam in the Clay Stone, near the foot of the Horse Range, south side of New Road, Dunstan.
- 80 Clay Stone. Horse Range.
- 81 Sandy Clay Stone. Horse Range.
- 82 Fire Clay. Horse Range.
- 83 Argillaceous Conglomerate. Horse Shoe Bush Range.
- 84 Plasma, (a green Chalcedony, closely allied to Jasper.) Maori Reserve, Moeraki.
- 85 Dolerite, showing the progress of decomposition. Moeraki.
- 86 Porphyritic Dolerite. Moeraki.
- 87 Calcareous Quartzite. Moeraki.
- 88 Calcareous Spherical Nodule. Moeraki.
- 89 Dolerite. Moeraki.
- 90 Chert, with small Crystals of Quartz. Waihola Lake.
- 91 Common Dolerite. Waihola Lake.
- 92 Compact Basalt. Coal Creek.
- 93 Porphyritic Basalt. Adams' Quarry, Tokomairiro.
- 94 Compact Fossiliferous Limestone. Tokomairiro.
- 95 Hard Brown Limestone. Portobello.
- 96 Trachyte Porphyry. Portobello.
- 97 Vesicular Basalt. Portobello.
- 98 Pyritous Reef. Lawrence.

- 99 Auriferous Quartz. Worthington Reef.
- 100 Quartz, with Schist. Copper Lode, Waipori.
- 101 Auriferous Quartz. Bridge Reef, Waipori.
- 102 Auriferous Cement. Hamilton.
- 103 Pyritous Rock. Tuapeka.
- 104 Micaceous Sandstone. Landslip, Pomakaka.
- 105 Breccia, with Green Nodule of Silicate of Alumina. Port Chalmers.
- 106 Trachyte Tufa. Port Chalmers.
- 107 Calcareous Breccia. Port Chalmers.
- 108 Clay Stone, with Calcareous matter. Port Chalmers.
- 109 Decomposed Porphyry. West side of Blanket Bay, Port Chalmers.
- 110 Indurated Clay Stone. Goat Island, Port Chalmers.
- 111 Tufaceous Sandstone. Goat Island, Port Chalmers.
- 112 Augite, with Hornblende Crystals. Junction of Port Chalmers Road.
- 113 Porphyritic Basalt. Port Royal.
- 114 Basalt, with Agate. Arden's Bay.
- 115 Mica Schist. Roy's Peak.
- 116 Albite, in Schist. Roaring Meg.
- 117 Schist, with Calcite Veins. Mouth of Greenstone Valley.
- 118 Foliated Calcareous Schist, with threads of Quartz. Greenstone River.
- 119 Mica Schist, irregularly foliated with Calcite. Kawarau Falls, Frankton.
- 120 Magnetic Iron, in Schist. Kawarau.
- 121 Crystals of Magnetic Iron, in Mica Schist. Kaurarau.
- 122 Schist. Stoney Creek, Maori Point, Shotover.
- 123 Schist, with Crystals of Iron Pyrites. Stoney Creek, Maori Point, Shotover.
- 124 Contorted Mica Schist. Shotover.
- 125 Felspar, in Schist. Maori Point, Shotover.
- 126 Quartz Cement. Shotover River.
- 127 Schist, with Calcite and Quartz. Remarkable Mountains.

- 128 Fissile Slate. Wakatipu Lake, Kingston.
- 129 Quartzose Schist. Wakatipu Lake, Kingston.
- 130 Light green Schist, with Quartz Veins. Wakatipu Lake.
- 131 Aphanite Breccia. Wakatipu Lake.
- 132 Mica Schist, with Copper. Moke Creek, Wakatipu Lake.
- 133 Contorted Cupreous Schists. Moke Creek, Wakatipu Lake.
- 134 Copper Pyrites. Moke Creek, Wakatipu Lake.
- 135 Calcareous Schist. Kingston.
- 136 Schist, with Magnetic Iron and traces of Copper. Hector Range, Kingston.
- 137 Felspar Porphyry. Kingston, east side.
- 138 Micaceous Schist. Kingston.
- 139 Siliceous Sandstone. Lindis Pass.
- 140 Timazite. Windley Creek.
- 141 Serpentine. Windley Creek.
- 142 Aphanite. Upper Mataura.
- 143 Fine grained Syenite. McKellar Lake.
- 144 Vein of Limestone. West side of McKellar Lake.
- 145 Breccia. McKellar Lake.
- 146 Mica Schist. Clyde, Dunstan.
- 147 Micaceous Schist, with bands of Quartz. Pioneer Claim, Dunstan.
- 148 Granitic Porphyry. Pioneer Claim, Dunstan.
- 149 Clay Slate. Nokomai.
- 150 Conglomerate. Albert's Cap.
- 151 Brecciated Gritstone. Wyndham Hill.
- 152 Conglomerate, from Brown Coal Formation.
- 153 Fire-clay. Molyneux.

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#### PROVINCE OF SOUTHLAND.

- 1 Hornblende Breccia. Bluff.
- 2 Trachyte Sandstone.
- 3 Diorite. Mokonoko, Bluff Railway.
- 4 Granite. Port Pegasus, Stewart's Island.

- 5 Indurated Clay. Riverton.
- 6 Decomposed Trachyte Tufa. Longwood Range.
- 7 Diorite. Mokomoko, Bluff Railway.
- 8 Fossil Wood. Longwood Range.
- 9 Decomposing Diorite. Howell's Point, Riverton.
- 10 Sandstone. Otapiri Creek.
- 11 Fine grained Diorite Slate. Mokomoko Cutting,  
Bluff Railway.
- 12 Silicified Sandstone. Longwood Range.
- 13 Diorite Porphyry. Mokomoko, Bluff Railway.
- 14 Decomposed Diorite.
- 15 Trachyte Tufa. Howell's Point, Riverton.
- 16 Clay Slate. Bluff Harbour.
- 17 Sandstone. Howell's Point, Riverton.
- 18 Syenite. Longwood Range.
- 19 Pyritous Quartz. Caroline Harbour, Isle of Ruapuke.
- 20 Green Slate. Howell's Point, Riverton.
- 21 Diorite Sandstone. Howell's Point, Riverton.

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#### CHATHAM ISLANDS.

- 1 Granite.
- 2 Portion of a Septaria.
- 3 Fossiliferous Limestone.
- 4 Quartzose Slate.
- 5 Compact Granular Limestone.
- 6 Vesicular Basalt.
- 7 Vesicular Basalt, with Amygdaloids of Calcite.
- 8 Compact Basalt, with a Nodule of Calc-spar.
- 9 Flint, in Chalk.
- 10 Compact Limestone.
- 11 Crystals of Olivine, in Tufa.
- 12 Gritty Limestone.
- 13 Lithographic Limestone.
- 14 Nodular Sandstone.
- 15 Volcanic Breccia, cemented by Calcareous matter.
- 16 Augite Basalt.
- 17 Basalt, with Crystals of Olivine.
- 18 Volcanic Ash, cemented with Carbonate of Lime.



- 19 Inferior Jasper.
- 20 Arragonite.
- 21 Earthy Quartz.
- 22 Nodule of Crystallized Iron Pyrites.
- 23 Calcite, from a Geode.
- 24 Fossiliferous Limestone.

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### THE SNARES.

- 1 Black Chert.
- 2 Vesicular Basalt.
- 3 Tufaceous Clay.
- 4 Porphyritic Basalt.
- 5 Vesicular Trachyte.
- 6 Compact Basalt.

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### CAMPBELL ISLAND.

- 1 Flint, from Chalk.
- 2 Thoroughly Decomposed Porphyry.
- 3 Chalk.
- 4 Jasper.
- 5 Slate.
- 6 Trachyte Porphyry.
- 7 White Quartz.
- 8 Basalt.
- 9 Slate, coated with Jasper.

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### AUCKLAND ISLANDS.

- 1 Syenite.
- 2 Indurated Clay Stone.
- 3 Compact Trachyte.
- 4 Granite Porphyry, with Gneiss.
- 5 Granite.
- 6 Vesicular Basalt.
- 7 Clay Stone.
- 8 Compact Diorite.

- 9 Syenite.
- 10 Hornblende Porphyry.
- 11 Clinkstone.
- 12 Compact Limestone.
- 13 Conglomerate.
- 14 Decomposed Doleritic Rock.
- 15 Granite.
- 16 Indurated Clay Stone.
- 17 Fibrous Trachyte Lava.
- 18 Clay Stone.
- 19 Peat Coal, Highly Bituminous.

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ANTIPODES ISLANDS.

- 1 Phonolite.
  - 2 Vesicular Dolerite.
  - 3 Crystalline Dolerite.
  - 4 Claystone.
  - 5 Vesicular Trachyte.
  - 6 Basalt.
  - 7 Vesicular Lava.
  - 8 Volcanic Bombs.
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## XXI. NEW ZEALAND FOSSILS.

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The names given to the Fossils in the following lists are in most cases only provisional, being only employed for the purpose of facilitating the Geological Survey of the Islands, the Collections not having yet been submitted to accurate palæontological investigation. In those cases where the Fossils have been identified with any of the forms figured in Hochstetter's work on the Geology of New Zealand,\* a reference is given to the Plate.

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### SYNOPSIS OF THE ARRANGEMENT OF THE FORMATIONS REPRESENTED BY THE COLLECTION OF FOSSILS.

Post	{	A. a. Raised beaches.
Tertiary.	{	b. Modern alluvial deposits.
Tertiary.	{	B. Upper, or Struthiolaria beds.
	{	C. Middle, or Cucullæa beds.
	{	D. Lower, or Ototara series.
	{	E. Leda Marls, or Aotea series.
Mesozoic.	{	F. Chalk, or Cobden series.
	{	G. Ferruginous Sandstones. Waipara beds.
	{	H. Green Sandstones. Putataka series.
	{	I. Otapiri series.
	{	K. Wairoa series.
	{	L. Maitai series.
Palæozoic.	{	M. Kaihiku series.
	{	N. Mt. Arthur series.

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\* "Novara Expedition. Geologischer Theil. 1 Bd.  
2 Abth. Paläontologie von Neu Seeland." Hochstetter.  
Vol. II. Quarto. 1864.

## A.—POST-TERTIARY.

## a.—RAISED BEACHES.

## I. — UPPER WANGANUI BEDS.

An open Sandy matrix containing the Shells in excellent state of preservation. The formation is one hundred feet in thickness near the coast at the mouth of the Wanganui River, but thins out inland, being only four feet thick where it rests on the Blue Clay, or Struthiolaria Beds, in the Shakespere Cliff opposite the Town of Wanganui.

1 Murex.	25 Pecten Zelandiac.
2 Fusus.	26 Pecten rudis.
3 Fusus.	27 Lima.
4 Triton.	·8 x ·5.
5 Cassis.	28 Pinna.
6 Ancillaria.	7·8 x 2·6.
7 Voluta.	29 Mytilus magellanicus.
8 Natica.	30 Pectunculus.
1·1 x 1·1.*	4·0 x 4·0 oblique.
9 Struthiolaria straminea	31 Pectunculus.
10 Turritella.	2·5 x 2·5.
2·3 x ·7.	32 Pectunculus.
11 Turritella.	4·0 x 3·0.
1·0 x ·3.	33 Pectunculus.
12 Imperator.	·6 x ·6.
13 Trochus.	34 Lucina.
14 Rotella.	1·8 x 1·8.
15 Crepidula.	35 Lucina.
16 Pileopsis.	·6 x ·6.
17 Calyptraea.	36 Venericardia.
18 Trochita.	37 Cardium.
19 Waldheimia.	38 Venus, ridged.
20 Terebratula.	39 Venus, striated.
21 Terebratella.	40 Venus, mottled.
22 Rhyneconella nigricans.	41 Tapes.
23 Ostrea.	42 Mactra.
4·0 x 3·0.	2·8 x 3·9.
24 Pecten laticostatus.	

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\* Dimensions in inches and decimal parts.

43 <i>Mactra triangulare</i> . ·6 x ·7.	51 <i>Corbula</i> .
44 <i>Tellina</i> .	52 <i>Saxicava</i> .
45 <i>Tellina</i> .	53 <i>Pholas</i> .
46 <i>Tellina</i> .	54 <i>Thracia</i> .
47 <i>Psammobia</i> .	55 <i>Myadora</i> .
48 <i>Sanguinolaria</i> .	56 <i>Balanus</i> .
49 <i>Mesodesma</i> . 1·2 x 3·0.	57 <i>Echinarachnius</i> .
50 <i>Donax</i> .	58 <i>Turbinolia</i> .
	59 <i>Teredo</i> .

## II.—CAPE RODNEY.

Dark coloured Conglomerate and Grit, consisting of Calcareous Sand cementing fragments of Slate and Shells, resting on the surface of the Slate Rocks at Cape Rodney, 40 miles north of Auckland.

1 <i>Turritella</i> . 2·5 x 1·0.	9 <i>Pectunculus laticostatus</i> . <i>Quoyet Gaim.</i> XV.
2 <i>Scalaria lyrata</i> . <i>Zitt.</i> IX.*	10 <i>Pectunculus</i> . 3·5 x 3·0.
3 <i>Turbo</i> .	11 <i>Ostrea Wullerstorfi</i> . <i>Zitt.</i> XI.
4 <i>Fusus</i> .	12 <i>Ostrea</i> , margin crenulated. 6·0 x 4·2, valve 1·5 thick.
5 <i>Rhynchonella nigricans</i> . <i>Sow.</i> XIV.	13 <i>Cardium</i> . 4·5 x 5·2 oblique.
6 <i>Terebratella dorsata</i> . <i>Gmel.</i> XIV.	14 <i>Haliotis</i> .
7 <i>Artemis</i> .	
8 <i>Venericardia</i> .	

## III.—MOTANAU, CANTERBURY.

Upper Beds of Sand and Gravel, resting on a denuded surface of Blue Clay strata.

1 <i>Fusus</i> .	3 <i>Imperator</i> .
2 <i>Rotella</i> .	4 <i>Trochus</i> .

\* Roman numerals refer throughout to the Plates in *Hochstetter's New Zealand*, Vol. II.

- |                 |                 |
|-----------------|-----------------|
| 5 Dentalium.    | 12 Mactra.      |
| 6 Crepidula.    | 13 Tellina.     |
| 7 Ostrea.       | 14 Mesodesma.   |
| 8 Pecten.       | 15 Vermetus.    |
| 9 Patella.      | 16 Saxicava.    |
| 10 Mytilus.     | 17 Pholas.      |
| 11 Terebratula. | 18 Terebratula. |

# B.—UPPER, OR STRUTHIOLARIA SERIES.

I. — Blue Sandy Clay beds forming the lower portion of the Shakespere Cliff, WANGANUI.

- |                             |                                  |
|-----------------------------|----------------------------------|
| 1 Murex.                    | 26 Struthiolaria.                |
| 2 Murex.                    | 27 Turritella.                   |
| 3 Typhis.                   | 3·0 x ·9.                        |
| 4 Trophon.                  | 28 Turritella.                   |
| 5 Fusus.                    | 3·0 x ·7.                        |
| 4·5 x 2·2.                  | 29 Turritella.                   |
| 6 Fusus.                    | 1·0 x ·3.                        |
| 7 Fusus.                    | 30 Scalaria Browni. <i>Zitt.</i> |
| 8 Fusus.                    | IX.                              |
| 9 Fusus.                    | 31 Rissoa.                       |
| 10 Triton.                  | 32 Imperator.                    |
| 11 Trichotropis.            | 33 Trochus.                      |
| 12 Buccinum.                | 34 Rotella.                      |
| 13 Buccinum.                | 35 Trochita.                     |
| 14 Buccinum.                | 36 Calyptræa.                    |
| 15 Buccinum.                | 37 Emarginula.                   |
| 16 Mangelia.                | 38 Hematoma.                     |
| 17 Purpura.                 | 39 Crepidula.                    |
| 18 Cassis.                  | 40 Dentalium.                    |
| 19 Ancillaria.              | 41 Tornatella.                   |
| 20 Pleurotoma.              | 42 Auricola.                     |
| 21 Voluta.                  | 43 Vermetus.                     |
| 22 Natica.                  | 44 Waldheimia.                   |
| 23 Natica.                  | 45 Waldheimia.                   |
| 24 Cerithium.               | 46 Terebratula.                  |
| 25 Struthiolaria straminea. | 47 Terebratella.                 |
|                             | 48 Rhyconella.                   |

49 Ostrea.	68 Venericardia.
4·0 x 3·0. Mud Oyster.	69 Venus.
50 Ostrea.	70 Venus.
3·0 x 2·0. Margin scal-	71 Venus.
loped.	72 Venus.
51 Ostrea.	73 Artemis.
52 Pecten laticostatus.	74 Dosinia (Lucinopsis.)
<i>Dieffi.</i>	75 Panopea.
53 Pecten Zelandiae.	76 Corbula.
54 Pecten.	77 Lutraria.
55 Pecten rudis.	78 Tellina.
56 Pecten.	79 Tellina.
57 Lima.	80 Psammobia.
58 Lima.	81 Sanguinolaria.
59 Pinna.	82 Mesodesma.
7·8 x 2·6.	83 Thracia.
60 Mytilus.	84 Chamostrea.
61 Mytilus Magellanica.	85 Chamostrea.
62 Modiola.	86 Balanus.
63 Arca.	87 Echinus.
64 Pectunculus.	88 Turbinolia.
65 Cardium.	89 Tereido.
66 Lucina.	90 Coral.
1·8 x 1·8.	91 Coral.
67 Cardita.	92 Bryozoa, sp.

II.—Cliffs of the same Blue Clay exposed along the  
the coast between PATEA and WAITOTARA.

1 Natica.	7 Ostrea.
2·3 x 1·6.	8 Pecten athlete. <i>Zitt.</i>
2 Struthiolaria cingulata	IX.
<i>Zitt.</i> XV.	9 Mactra.
3 Calyptraea.	10 Cardium.
4 Crepidula incurva. <i>Zitt.</i>	4·0 x 4·4.
XV.	11 Venericardia.
5 Waldheimia.	12 Venus.
6 Ostrea.	
7·5 x 3·8, dull white,	
each valve 1·5 thick.	

## III. — CASTLE POINT.

An isolated headland on the east coast of the Wellington Province.

- |                            |                            |
|----------------------------|----------------------------|
| 1 <i>Fusus</i> .           | 8 <i>Pecten</i> .          |
| 3·0 x 2·5.                 | 9 <i>Perna</i> .           |
| 2 <i>Teredo</i> .          | 10 <i>Venericardia</i> .   |
| 3 <i>Balanus</i> .         | 11 <i>Pectunculus</i> .    |
| 4 <i>Turbinolia</i> .      | 12 <i>Venus</i> .          |
| 5 <i>Ostrea</i> .          | 13 <i>Waldheimia</i> .     |
| 6 <i>Pecten Zelandiæ</i> . | 14 <i>Echinarachnius</i> . |
| 7 <i>Pecten rudis</i> .    |                            |

## IV. — AWATERE, MARLBOROUGH.

Blue Clay Beds, with tough concretions full of Fossil Shells. The strata, which have a great thickness, are exposed along the terraces of the Awatere River.

- |                                      |                                    |
|--------------------------------------|------------------------------------|
| 1 <i>Fusus</i> .                     | 15 <i>Crepidula</i> .              |
| 5·0 x 3·0.                           | 16 <i>Turritella</i> .             |
| 2 <i>Fusus</i> .                     | 17 <i>Turritella</i> .             |
| 3 <i>Fusus</i> .                     | 18 <i>Turritella</i> .             |
| 4 <i>Natica solida</i> . Sow.        | 19 <i>Struthiolaria caniculata</i> |
| XV.                                  | <i>Zitt.</i> XV.                   |
| 5 <i>Ancillaria</i> .                | 20 <i>Struthiolaria cingulata</i>  |
| 6 <i>Voluta striata</i> .            | <i>Zitt.</i> XV.                   |
| 3·0 x 1·3.                           | 21 <i>Struthiolaria</i> , sp. XV.  |
| 7 <i>Voluta Pacifica</i> . Sol.      | 22 <i>Struthiolaria reticulata</i> |
| XV.                                  | 23 <i>Balanus</i> .                |
| 8 <i>Voluta</i> , sp.                | 24 <i>Dentalium</i> .              |
| 9 <i>Natica</i> .                    | 25 <i>Ostrea</i> .                 |
| 10 <i>Natica</i> .                   | 26 <i>Ostrea</i> .                 |
| 11 <i>Trochus Stoliczkai</i> . Zitt. | 27 <i>Pecten</i> .                 |
| XV.                                  | 28 <i>Pinna</i> .                  |
| 12 <i>Trochita dilitata</i> . Sow.   | 8·0 x 5·0.                         |
| XV.                                  | 29 <i>Mactra</i> .                 |
| 13 <i>Calyptraea</i> .               | 30 <i>Lutraria</i> .               |
| 14 <i>Crepidula incurva</i> . Zitt.  | 31 <i>Artemis</i> .                |
| XV.                                  | 32 <i>Tapes</i> .                  |



- |   |                    |
|---|--------------------|
| 33 Venus.   | 39 Pectunculus.    |
| 34 Venus.   | 3·3 x 3·3.         |
| 35 Tellina.   | 40 Pectunculus.    |
| 36 Dosinia Greyi. <i>Zitt.</i> XV.                    | 2·6 x 3·0.         |
| 37 Leda.  | 41 Cucullea.       |
| 38 Pectunculus laticostatus. <i>Quoy et Gaim.</i> XV. | 2·5 x 3·0 oblique. |

## V.—MOTANAU, MARLBOROUGH.

Blue Sandy Clay, forming the lower part of the cliffs exposed along the banks of the river and coast. The concretions contain cetacean bones.

- |  |                                    |
|--|------------------------------------|
| 1 Fusus.                                     | 22 Cardium.                        |
| 2 Purpura.                                   | 4·8 x 5·2.                         |
| 3 Voluta.                                    | 23 Cardium.                        |
| 4 Voluta.                                    | ·4 x ·4.                           |
| 5 Turritella.                                | 24 Pectunculus.                    |
| 6 Natica.                                    | 25 Pectunculus.                    |
| 7 Natica.                                    | 26 Pinna.                          |
| 8 Trochus.                                   | 6·0 x 3·0.                         |
| 9 Crepidula incurva. <i>Zitt.</i> XV.        | 27 Mactra.                         |
| 10 Crepidula.                                | 28 Dosinia Greyi. <i>Zitt.</i> XV. |
| 11 Dentalium.                                | 29 Artemis.                        |
| 12 Balanus.                                  | 30 Tapes.                          |
| 13 Struthiolaria caniculata <i>Zitt.</i> XV. | 31 Venus.                          |
| 14 Struthiolaria, sp. XV.                    | 32 Venus.                          |
| 15 Struthiolaria (thorny.)                   | 33 Venus.                          |
| 16 Terebratula.                              | 34 Sanguinolaria.                  |
| 17 Ostrea.                                   | 35 Lutraria.                       |
| 18 Ostrea.                                   | 36 Tellina.                        |
| 19 Pecten.                                   | 37 Mytilus.                        |
| 20 Pecten.                                   | 38 Modiola.                        |
| 21 Venericardia.                             | 39 Cucullea.                       |

## VI.—AWAMOA, OTAGO.

Blue Clay with fossiliferous concretions, exposed along the coast, and in the beds of the streams a few miles south of Oamaru.

- |                   |                  |
|-------------------|------------------|
| 1 Murex.          | 36 Turritella.   |
| 2 Murex.          | 37 Turritella.   |
| 3 Typhis.         | 38 Solarium.     |
| 4 Triton.         | 39 Trochus.      |
| 5 Triton.         | 40 Calyptraea.   |
| 6 Fusus.          | 41 Crepidula.    |
| 7 Fusus.          | 42 Dentalium.    |
| 8 Fusus.          | 43 Dentalium.    |
| 9 Fusus.          | 44 Dentalium.    |
| 10 Fusus.         | 45 Tornatella.   |
| 11 Fusus.         | 46 Cylichna.     |
| 12 Fusus.         | 47 Cylichna.     |
| 13 Trophon.       | 48 Rhynconella.  |
| 14 Pyrula.        | 49 Placunomia.   |
| 15 Buccinum.      | 50 Lima.         |
| 16 Cassidaria.    | 3·3 x 3·4.       |
| 17 Nassa.         | 51 Limatula.     |
| 18 Ancillaria.    | 52 Pecten.       |
| 19 Conus.         | 53 Pecten.       |
| 20 Pleurotoma.    | 54 Pinna.        |
| 21 Mangelia.      | 55 Avicula.      |
| 22 Voluta.        | 56 Perna.        |
| 23 Voluta.        | 57 Modiola.      |
| 24 Marginella.    | 58 Arca.         |
| 25 Marginella.    | 59 Cucullæa.     |
| 26 Marginella.    | 60 Pectunculus.  |
| 27 Cypræa.        | 61 Solanella.    |
| 28 Natica.        | 62 Limopsis.     |
| 29 Natica.        | 63 Cardium.      |
| 30 Polinices.     | 64 Lucina.       |
| 31 Sigeretus.     | 65 Crassatella.  |
| 32 Chemnitzia.    | 66 Venericardia. |
| 33 Cerithium.     | 67 Venus.        |
| 34 Struthiolaria. | 68 Venus.        |
| 35 Struthiolaria. | 69 Artemis.      |

70 Lutraria.	73 Corbula.
71 Tellina.	74 Mactra.
72 Mya.	

VII. — LOWER GORGE OF THE WAIPARA RIVER,  
CANTERBURY.

Highly inclined Beds of Sand, Clay, and Conglomerate, forming cliffs several hundred feet in height where cut through by the river.

1 Voluta Pacifica. <i>Sol.</i>	12 Lima.
XV.	2·5 x 2·4.
2 Turritella.	13 Mactra.
5·0 x 1·5.	14 Venericardia.
3 Natica.	15 Cardium.
3·0 x 2·5.	5·0 x 5·2.
4 Crepidula incurva. <i>Zitt.</i>	16 Cardium.
XV.	17 Venus.
5 Crepidula.	18 Venus.
6 Cerithium.	19 Venus.
7 Calyptraea.	20 Pectunculus laticostatus. <i>Quoy et Gaim.</i>
8 Ostrea.	XV.
9 Pecten.	21 Pectunculus.
10 Modolia.	22 Lutraria solida. <i>Hec.</i>
11 Mytilus.	(Museum Icones.)

HAMPDEN, OTAGO.

1 Fusus.	6 Pinna.
2 Turritella.	7 Venus.
3 Turritella.	8 Trigonina.
4 Natica.	9 Nucula.
5 Crepidula.	

VIII.—Cliffs of Blue Clay Marl, exposed along the KANIERI RIVER, some miles inland from Hokitika. These Clays form the bed on which the auriferous drifts rest.

1 Fusus.	4 Ancillaria.
2 Cassidaria.	5 Turritella.
3 Cassis.	6 Natica.

- |                         |                           |
|-------------------------|---------------------------|
| 7 Voluta.               | 11 Pectunculus laticosta- |
| 8 Struthiolaria canicu- | tus. <i>Quoy et Gaim.</i> |
| lata. <i>Zitt.</i> XV.  | XV.                       |
| 9 Dentalium.            | 12 Pecten Zelandiæ.       |
| 10 Balanus.             | 13 Panopæa.               |
|                         | 14 Leda.                  |
|                         | 15 Limopsis.              |

## C.—MIDDLE, OR CUCULLÆA SERIES.

## I.—ORAKEI BAY, AUCKLAND.

Tough Clay Sandstones, forming the lower part of the Waitemata series of Hochstetter.

- |                                 |                                |
|---------------------------------|--------------------------------|
| 1 Pecten Aucklandicus.          | 4 Pteropod.                    |
| 2 Pecten Fischeri. <i>Zitt.</i> | 5 Foramineferæ. <i>Bryozoa</i> |
| IX.                             | XVI.—XVIII.                    |
| 3 Pecten Fischeri.              |                                |

## II.—KAWAU ISLAND.

Calcareous Sandstones with fossil leaves, on south-east point of the Island.

- |                                |                                   |
|--------------------------------|-----------------------------------|
| 1 Teredo Heaphii. <i>Zitt.</i> | 6 Crassatella ampla. <i>Zitt.</i> |
| XIV.                           | XIV.                              |
| 2 Turritella.                  | 7 Natica solida.                  |
| 3.0 x 1.0.                     | 8 Pecten Burnettii. <i>Zitt.</i>  |
| 3 Turritella.                  | X.                                |
| 3.0 x .8.                      | 9 Pectunculus laticosta-          |
| 4 Turbo superbus. <i>Zitt.</i> | tus. <i>Quoy et Gaim.</i>         |
| XIV.                           | XV.                               |
| 5 Purpura textiliosa.          | 10 Artemis.                       |
| <i>Lam.</i> XIV.               | 11 Ostrea Wullerstorfi.           |
|                                | <i>Zitt.</i> XI.                  |

## III.—NAPIER AND CAPE KIDNAPPERS.

Limestones and Clay Marls, exposed in the cliffs around Scinde Island, and along the coast. The same formation is general throughout the east part of Hawke's Bay.

- |          |          |
|----------|----------|
| 1 Fusus. | 2 Fusus. |
|----------|----------|

- |                                   |                                      |
|-----------------------------------|--------------------------------------|
| 3 Calyptræa.                      | 11 Pecten Burnettii. Zitt.           |
| 4 Ostrea, thin shelled,<br>small. | X.                                   |
| 5 Ostrea.                         | 12 Pecten Triphooki. Zitt.           |
| 5.0 x 3.0, corrugated.            | XI.                                  |
| 6 Ostrea.                         | 13 Pecten.                           |
| 4.5 x 4.5, corrugated.            | 4.0 x 4.0, 11 subdivi-<br>ded striæ. |
| 7 Ostrea.                         | 14 Pecten.                           |
| 4.0 x 3.0, surface even.          | 4.0 x 4.0, 25 striæ.                 |
| 8 Ostrea ingens. Sow.             | 15 Mytilus.                          |
| 9.0 x 5.0, dull white.            | 16 Venus.                            |
| XIII.                             | 17 Pectunculus.                      |
| 9 Pecten athlete. Zitt.           | 18 Tapes.                            |
| X.                                | 19 Venericardia.                     |
| 10 Pecten Zelandiæ.               | 20 Waldheimia.                       |

IV.—A series of conical hills, composed of vertical strata of Sands and Marls, known as Taipos, occur on the EAST COAST, WELLINGTON, near Whareama. The fossils are in hard beds of Cement.

- |  |                                   |
|--|-----------------------------------|
| 1 Turritella.                                  | 9 Cucullæa.                       |
| 3.5 x 1.0.                                     | 2.3 x 3.0.                        |
| 2 Turritella, small.                           | 10 Cardium.                       |
| 3 Pecten.                                      | 4.5 x 5.5.                        |
| 3.2 x 3.8, 8 striæ.                            | 11 Cardium, small.                |
| 4 Pecten Triphooki. Zitt.                      | 12 Mactra triangulare.            |
| XI.  | 13 Crassatella ampla. Zitt.       |
| 5 Pecten costatus.                             | XIV.                              |
| 4.0 x 4.3.                                     | 14 Lutraria.                      |
| 6 Pectunculus.                                 | 15 Lucina.                        |
| 3.2 x 3.8.                                     | 16 Tellina.                       |
| 7 Pectunculus laticosta-<br>tus. Quoy et Gaim. | 17 Struthiolaria cingulata.       |
| XV.  | Zitt. XV.                         |
| 8 Cucullæa.                                    | 18 Struthiolaria, (thorny<br>sp.) |
| 4.0 x 4.5, oblique.                            |                                   |

V.—Clay Marls, with bands of Cement, occur in the interior of the North Island, in the district of the UPPER WANGANUI, at PAPAROA, PARAKINO, PUKETAPU, HAUTAPU. These fossiliferous strata reach an altitude of 2200 feet above the sea level, without being much disturbed. The ancient shore lines with Calcareous Conglomerate is met with on the south slope of the Kaimanawa Range.

- |                             |                           |
|-----------------------------|---------------------------|
| 1 Fusus.                    | 12 Mytilus.               |
| 2 Fusus.                    | 13 Venus.                 |
| 3 Ancillaria.               | 14 Pectunculus laticosta- |
| 4 Turritella, small.        | tus. <i>Quoy et Gaim.</i> |
| 5 Waldheimia.               | XV.                       |
| 6 Rhyconella nigricans.     | 15 Cardium.               |
| 7 Terebratula.              | 16 Artemis.               |
| 8 Ostrea, like O. ingens.   | 17 Tapes.                 |
| 9 Ostrea.                   | 18 Struthiolaria.         |
| 10 Crepidula incurva. Zitt. | 19 Crassatella.           |
| XV.                         | 20 Cucullæa.              |
| 11 Balanus.                 | 3.0 x 4.5, oblique.       |

#### VI.—BRIGHTON, WESTLAND.

Calcareous Sandstone with Cement bands, forming the Seal Rocks, south of Brighton. Fossil Penguin from same strata.

- |               |                |
|---------------|----------------|
| 1 Triton.     | 9 Cardium.     |
| 2 Scalaria.   | 10 Artemis.    |
| 3 Cassidaria. | 11 Venus.      |
| 4 Turbo.      | 12 Lima.       |
| 5 Teredo.     | 13 Brissus.    |
| 6 Pecten.     | 14 Schizaster. |
| 7 Pecten.     | 15 Cidaris.    |
| 8 Gryphæa.    | 16 Echinus.    |

VII.—The same Beds as at Brighton, but having more the character of Green Sands, are exposed in the KAIPUKI CLIFFS, on the west coast of Nelson, south of Cape Farewell.

- |  |                                  |
|--|----------------------------------|
| 1 Scalaria.                                | 3 Waldheimia.                    |
| 2 Waldheimia lenticularis. <i>Desh.</i> X. | 4 Ostrea Wullerstorfi. Zitt. XI. |

- |                                    |                                  |
|------------------------------------|----------------------------------|
| 5 <i>Ostrea Nelsoniana</i> . Zitt. | 8 <i>Pecten</i> , small.         |
| XI.                                | 9 <i>Lima</i> .                  |
| 6 <i>Pecten Hutchinsoni</i> .      | 10 <i>Teredo Heaphii</i> . Zitt. |
| <i>Hec.</i>                        | XIV.                             |
| 7 <i>Pecten Hochstetteri</i> .     | 11 <i>Bryozoa</i> .              |
| Zitt. XI.                          |                                  |

VIII.—Green Sandstones forming cliffs at FOSSIL POINT, CAPE FAREWELL, NELSON.

- |                                |  |
|--------------------------------|--|
| 1 <i>Lima</i> .                | 5 <i>Hemipatagus formosus</i>                  |
| 2 <i>Pecten Hochstetteri</i> . | Zitt. XII.                                     |
| Zitt. XI.                      | 6 <i>Hemipatagus tuberculatus</i> . Zitt. XII. |
| 3 <i>Cucullæa</i> .            |  |
| 4 <i>Struthiolaria</i> .       |  |

IX.—MOUNT CAVERHILL, NELSON, EAST COAST.

Calcareous Sandstones, forming a thin layer capping the Slates.

- |                            |                          |
|----------------------------|--------------------------|
| 1 <i>Fusus</i> .           | 10 <i>Pecten</i> .       |
| 2 <i>Natica</i> .          | 11 <i>Mytilus</i> .      |
| 3 <i>Trochus</i> .         | 12 <i>Venus</i> .        |
| 4 <i>Turritella</i> .      | 13 <i>Venus</i> .        |
| 5 <i>Turritella</i> .      | 14 <i>Pectunculus</i> .  |
| 6 <i>Dentalium</i> .       | 15 <i>Venericardia</i> . |
| 7 <i>Teredo</i> .          | 16 <i>Tapes</i> .        |
| 8 <i>Pecten Zelandiæ</i> . | 17 <i>Balanus</i> .      |
| 9 <i>Pecten Burnetti</i> . |                          |

X.—WAIKARI, CANTERBURY.

Blue Clay with concretions. Exposed in cliffs along the courses of the rivers. Overlaid by Gravel and broken shells. Base of formation not observed.

- |                                |                                   |
|--------------------------------|-----------------------------------|
| 1 <i>Ancillaria</i> .          | 7 <i>Venus</i> .                  |
| 2 <i>Turritella</i> , small.   | 8 <i>Lutraria</i> .               |
| 3 <i>Natica</i> .              | 9 <i>Cucullæa</i> .               |
| 4 <i>Dentalium giganteum</i> . | 3·5 x 4·5, oblique.               |
| 5 <i>Mytilus</i> .             | 10 <i>Struthiolaria spinosa</i> . |
| 6 <i>Cardium</i> , small.      |                                   |

## XI.—SHERRY RIVER AND WANGAPEKA, NELSON.

Calcareous Clays, underlying the Gravels of the  
Moutre Hills.

1 Ancillaria.	5 Ostrea.
2 Natica.	6 Anatina.
3 Dentalium.	7 Tellina.
4 Ostrea Wullerstorfi.	8 Echinite spines.
<i>Zitt. XI.</i>	

## XII.—LYNGDON, CANTERBURY.

Clay Beds with contentious masses containing the  
Fossils.

1 Turritella.	12 Ostrea.
3.0 x 1.0.	13 Pecten Hochstetteri.
2 Turritella, small.	<i>Zitt. XI.</i>
3 Natica.	14 Cardium, small.
4 Turbo.	15 Pectunculus.
5 Turbinolia.	16 Pectunculus, small.
6 Crepidula elongata.	17 Anatina.
7 Crepidula.	18 Cucullæa.
8 Calyptræa.	19 Solanella.
9 Terebratula.	20 Artemis.
10 Rhynchonella.	21 Lutraria.
11 Ostrea incurva.	

## XIII.—HAUTAPU FALLS, UPPER RANGITIKI.

Beds of Calcareous Clay, at an altitude of 2000 feet  
above the sea. Dip towards the west.

1 Trochus.	4 Cardium.
2 Crepidula.	5 Venus.
3 Cardium.	6 Venus.

## XIV.—HURUNUI MOUND.

Beds of loose Sandy Clay.

1 Turritella.	5 Pecten Hochstetteri.
3.5 x 1.0.	<i>Zitt. XI.</i>
2 Natica.	6 Venericardia.
3 Ostrea.	7 Cardium (large frag-
4 Pecten (ovate.)	ments.)



8 Pectunculus.	10 Mactra.
9 Tapes.	11 Echinus.

## XV.—UPPER TRESSILAC, CANTERBURY.

Sands and Clays full of Fossils, resting unconformably on an older series, likewise with Fossils. These strata are exposed in a detached basin on the west side of Mt. Torlesse.

1 Ancillaria.	26 Turbinolia.
2 Turritella. 3·0 x 1·0.	27 Chama.
3 Scalaria.	28 Ostrea, like <i>O. ingens</i> .
4 Scalaria.	29 Pecten Zelandiæ.
5 Voluta, large thorny.	30 Pecten Athleti. <i>Zitt.</i>
6 Voluta ornata, small.	X.
7 Voluta Pacifica. (?)	31 Pecten Triphooki. <i>Zitt.</i>
8 Natica. 2·5 x 2·1.	XI.
9 Natica, same at Patea.	32 Pecten, fragment.
10 Turbo, large.	33 Modiola.
11 Triton, small.	34 Venus.
12 Trochus.	35 Pectunculus laticostatus. <i>Quoy et Gaim.</i>
13 Cassidaria.	XV.
14 Pleurotoma.	36 Venericardia.
15 Terebra.	37 Cardium. 4·3 x 5·3.
16 Bulla.	38 Cardium. 3 inches.
17 Oliva.	39 Lima.
18 Calyptræa.	40 Artemis.
19 Struthiolaria, thorny.	41 Mactra.
20 Struthiolaria.	42 Psammobia.
21 Crepidula.	43 Arca.
22 Crepidula.	44 Cucullæa, large.
23 Cerithium.	45 Brissus.
24 Waldheimia, large.	46 Hemipatagus.
25 Waldheimia, small.	

## XVI.—KOKOHU, RANGITATA, CANTERBURY.

(PAREORA SERIES OF HAAST.)

## Calcareous Sandstones.

- |               |                        |
|---------------|------------------------|
| 1 Pododesma.  | 7 Pecten Hochstetteri. |
| 2 Turritella. | Zitt. XI.              |
| 3 Turbinolia. | 8 Voluta (spinous.)    |
| 4 Cucullæa.   | 9 Venus.               |
| 2.5 x 3.2.    | 10 Pectunculus.        |
| 5 Cucullæa.   | 11 Waldheimia.         |
| 6 Ostrea.     | 3.5 x 3.0.             |
|               | 12 Cyprina.            |

## XVII.—WAITAKI RIVER, OTAGO.

Yellow incoherent Sandstone, skirting the valley at an altitude of 800 feet above the sea.

- |                     |                        |
|---------------------|------------------------|
| 1 Cucullæa.         | 2 Cucullæa,            |
| 2.8 x 4.1, oblique. | 2.4 x 3.3, oblique.    |
|                     | 3 Dentalium giganteum. |

## XVIII.—CAVERSHAM, OTAGO.

## Yellow and Blue Calcareous Sands.

- |                        |                     |
|------------------------|---------------------|
| 1 Waldheimia.          | 3 Pinna.            |
| 2 Pecten Hochstetteri. | 4 Brissus oblongus. |
| Zitt. XI.              |                     |

## XIX.—TOKOMAIRIRO, OTAGO.

Black Bituminous Limestone. Overlies the Brown Coal series.

- |                        |            |
|------------------------|------------|
| 1 Cucullæa.            | 3 Ostrea.  |
| 2.3 x 2.8.             | 4 Cardium. |
| 2 Pecten Hochstetteri. | 5 Nucula.  |
| Zitt. XI.              |            |

## XX.—WAKATIPU LAKE, OTAGO.

Compact Earthy Limestone, occupying and fringing valleys among the mountains, on the north shore of the lake, near Moke Creek. Altitude, 1600 feet.

- |           |                |
|-----------|----------------|
| 1 Fusus.  | 3 Terebratula. |
| 2 Natica. | 4 Ostrea.      |

- |                     |                              |
|---------------------|------------------------------|
| 5 Pleurotomaria.    | 11 Cucullæa.                 |
| 6 Anatina.          | 1·8 x 2·1, oblique.          |
| 7 Anatina.          | 12 Cucullæa.                 |
| 8 Anatina.          | 2·6 x 3·2, slightly oblique. |
| 9 Cardium.          |                              |
| 10 Cucullæa.        |                              |
| 2·4 x 3·5, oblique. |                              |

## D.—OLDER, OR OTOTARA SERIES.

## I.—RAGLAN.

Sandy Limestones, on the north side of the harbour, where they form rugged cliffs.

- |                        |                                 |
|------------------------|---------------------------------|
| 1 Dentalium.           | 6 Cardium.                      |
| 2 Ostrea.              | 7 Cyprina.                      |
| 7·0 x 3·0, nacreous,   | 8 Anatina striata.              |
| white.                 | 9 Pecten Fischeri. <i>Zitt.</i> |
| 3 Pecten Hochstetteri. | IX.                             |
| <i>Zitt.</i> XI.       | 10 Pholadomya.                  |
| 4 Waldheimia.          | 11 Isocardia.                   |
| 5 Cardium.             | 12 Leda.                        |

## RAKAIA RIVER, CANTERBURY.

An isolated outcrop of Calcareous Sandstone, in the Shingle terraces of the Plains. Known locally as the Curiosity Shop.

- |                        |            |
|------------------------|------------|
| 1 Micraster.           | 5 Lima.    |
| 2 Hemipatagus.         | 6 Venus.   |
| 3 Encrinal stems.      | 7 Balanus. |
| 4 Pecten Hochstetteri. |            |
| <i>Zitt.</i> XI.       |            |

## SELWYN RIVER, CANTERBURY.

Limestone overlying Brown Coal seam, on the Church Reserve.

- |                                   |          |
|-----------------------------------|----------|
| 1 Ostrea, like <i>O. ingens</i> , | 2 Venus. |
| nacreous black.                   | 3 Venus. |

## TAKAKA RIVER, NELSON.

Bluffs of Yellow Limestone, resting on Brown Coal formation.

- |                               |                          |
|-------------------------------|--------------------------|
| 1 Ostrea.                     | 3 Pecten Burnetti. Zitt. |
| 2 Pecten Hutchinsoni.<br>Hec. | X.                       |

## TATA ISLAND, NELSON.

Compact Yellow Limestone, resting on Granite.

- |   |                                  |
|---|----------------------------------|
| 1 Ostrea, like <i>O. ingens</i> .<br>8·0 x 6·8, dull white. | 7 Pecten Triphooki. Zitt.<br>XI. |
| 2 Ostrea.   | 8 Pecten Hutchinsoni.<br>Hec.    |
| 3 Waldheimia.   | 9 Pecten Athlete.<br>Zitt. X.    |
| 4 Chamostrea striata.                                       |                                  |
| 5 Pecten Zelandiæ.  |                                  |
| 6 Pecten Burnetti. Zitt.<br>X.                              |                                  |

## LOWER TRESSILAC, CANTERBURY.

Chalk Marls and Green Sands, overlaid unconformably by No. C.—XV., p. 185.

- |                             |   |
|-----------------------------|---|
| 1 Fusus.                    | 16 Pecten Triphooki. Zitt.<br>XI.       |
| 2 Turritella.               | 17 Pecten Burnetti. Zitt.<br>X.         |
| 3 Natica.                   | 18 Ostrea.<br>8·5 x 2·5, dull white.    |
| 4 Neritopsis.               | 19 Cardium.<br>4·5 x 5·5.               |
| 5 Turbo.<br>2·2 x 3·0.      | 20 Trigonía (?)                         |
| 6 Buccinum.                 | 21 Cucullæa.<br>3·5 x 4·5.              |
| 7 Cypræa.                   | 22 Crassatella ponderosa.<br>4·2 x 5·0. |
| 8 Trochus.                  | 23 Cyprina solida.<br>4·2 x 4·5.        |
| 9 Waldheimia.<br>3·0 x 2·1. | 24 Mesodesma.                           |
| 10 Waldheimia.              | 25 Anatina striata.                     |
| 11 Waldheimia.              |   |
| 12 Terebratella.            |   |
| 13 Terebratula.             |   |
| 14 Rhyconella.              |   |
| 15 Terebratula acuta.       |   |

26 Lima.	31 Venus.
27 Modiola.	32 Turbinolia.
28 Modiolia.	33 Foraminifera.
29 Pectunculus laticosta-	34 Echinus.
tus. <i>Quoy et Gaim.</i>	35 Serpula.
XV.	36 Coral.
30 Corbula.	

## BLACK BIRCH CREEK. MARLBOROUGH.

## White Sandy Limestone.

1 Turritella.	7 Pecten Hochstetteri (?)
2 Trochus.	8 Brissus.
3 Waldheimia.	5·8 x 5·0.
4 Rhyconella.	9 Echinite spines.
5 Venus.	10 Tereido.
6 Pectunculus.	

## POINT ELIZABETH, NELSON.

Green Sands, resting unconformably on the Chalk.

## 1 Pleuronectes. (?)

## OAMARU, OTAGO.

Extensive strata of White Calcareous Sandstone, converted in places into Yellow Lithograph Stone, containing casts of Fossils. (*Mantell. Geol. Journal. Vol. VI., p. 333.*)

1 Fusus.	13 Waldheimia solida.
2 Fusus.	14 Terebratella.
3 Fusus.	15 Terebratula.
4 Natica.	16 Rhyconella nigricans.
5 Turritella.	17 Ostrea incurva.
4·5 x 1·3.	18 Gryphaea.
6 Scalaria.	5·5 x 4·0 x 1·4.
7 Turbo.	19 Pecten Hochstetteri.
8 Cassidaria.	20 Pecten Burnettii.
9 Crepidula.	21 Pecten Hutchinsoni.
10 Turbinolia.	<i>Hec.</i> 5·2 x 5·4.
11 Waldheimia triangulare.	22 Pecten (venosum.)
12 Waldheimia obliqua.	23 Pecten Zelandiae.
	24 Lima, large sp.

- |                           |                           |
|---------------------------|---------------------------|
| 25 Lima, small sp.        | 32 Schizaster rotundatus. |
| 26 Tapes.                 | <i>Zitt.</i> XI.          |
| 27 Psammobia.             | 33 Nucleolites.           |
| 28 Venericardia.          | 34 Echinus.               |
| 29 Pectunculus.           | 35 Echinus spines.        |
| 30 Brissus Crawfordii.    | 36 Echinarachnius.        |
| <i>Hec.</i> 5·0 x 4·4.    | 37 Encrinal stems.        |
| 31 Brissus brevipetolata. | 38 Radiolites.            |
| <i>Hec.</i> 5·0 x 5·0.    |                           |

## DEANS, WAIPARA.

- |              |                |
|--------------|----------------|
| 1 Cardium.   | 3 Waldhemia.   |
| 5·0 x 5·2.   | 4 Nuculhostes. |
| 2 Waldhemia. |                |

## WEKA PASS, CANTERBURY.

Bold scarps of Limestone and Clay Marls. Fossils chiefly in the former.

- |                         |                              |
|-------------------------|------------------------------|
| 1 Fusus.                | 17 Venericardia.             |
| 2 Fusus.                | 18 Venus.                    |
| 3 Fusus.                | 19 Pectunculus (oblique.)    |
| 4 Turritella.           | 20 Pectunculus laticostatus. |
| 5 Scalaria.             | <i>Quoy et Gaim-</i>         |
| 6 Natica.               | <i>XI.</i>                   |
| 7 Trochus.              | 21 Myadora. (?)              |
| 8 Vermetus.             | 22 Waldheimia.               |
| 9 Waldheimia.           | 2·6 x 2·1 x 1·6.             |
| 10 Ostrea ingens (?)    | 23 Pholas.                   |
| 11 Ostrea, sp.          | 24 Turbinolia.               |
| 12 Pecten Hochstetteri. | 25 Schizaster rotundatus.    |
| <i>Zitt.</i> XI.        | <i>Zitt.</i> XI.             |
| 13 Pecten Hutchinsoni.  | 26 Echinite spines.          |
| <i>Hec.</i>             | 27 Encrinal stems.           |
| 14 Pecten Pleuronectes. | 28 Sponge.                   |
| 15 Pecten.              | 29 Sharks' teeth.            |
| 16 Chamostrea.          |                              |

## E.—LEDA MARLS, OR AOTEA SERIES.

## I.—WHITE CLIFFS and URUNUI RIVER, TARANAKI.

High bold cliffs of Chalk Marl. Fossils rare.

- |                   |  |                 |
|-------------------|--|-----------------|
| 1 Solanella.      |  | 3 Venus, small. |
| 2 Cardium, small. |  | 4 Fusus, small. |

## AOTEA, AUCKLAND.

Pale Blue Calcareous Sandstone. Forms cliffs round the harbour.

- |                          |  |                 |
|--------------------------|--|-----------------|
| 1 Scalaria.              |  | 4 Pleuronectes. |
| 2 Pecten Williamsoni.    |  | 5 Nucula.       |
| <i>Zitt.</i> IX.         |  | 6 Dentalium.    |
| 3 Pecten (same as Amuri) |  |                 |

## WANGAPE, WAIKATO RIVER, AUCKLAND.

Calcareous Sandstones and Marl, forms steep precipices.

- |               |  |         |
|---------------|--|---------|
| 1 Turbinolia. |  | 3 Leda. |
| 2 Nucula.     |  |         |

## HICK'S BAY, AUCKLAND.

Sandstones and Marlstones, exposed in cliffs along the coast.

- |                 |  |             |
|-----------------|--|-------------|
| 1 Fusus.        |  | 4 Lima.     |
| 5.0 x 3.0.      |  | 5 Cucullæa. |
| 2 Pleurotoma.   |  | 2.6 x 3.1.  |
| 3 Pleuronectes. |  |             |

## CONWAY RIVER, NELSON, EAST COAST.

Cliffs of Marlstone, indistinctly stratified.

- |              |  |                    |
|--------------|--|--------------------|
| 1 Fusus.     |  | 4 Cardium, small.  |
| 2 Natica.    |  | 5 Turbinolia.      |
| 3 Solanella. |  | 6 Echinite spines. |

## WAIKIAU-UA, NELSON, EAST COAST.

Fresh water Beds (?) at the source of the Eden, a tributary of the Waikiau-ua. Forming the lower part of lofty cliffs of Sand and Clay, exposed by the creek.

- |           |  |                         |
|-----------|--|-------------------------|
| 1 Cyclas. |  | 2 Crustacean fragments. |
|-----------|--|-------------------------|

## BATTEN RIVER, NELSON.

Chalk Marls, overlying the Coal formation, which occurs in a depression of the Granite.

- |                   |                     |
|-------------------|---------------------|
| 1 Fusus, large.   | 7 Solanella.        |
| 2 Natica.         | 8 Isocardia.        |
| 3 Waldheimia.     | 9 Avicula.          |
| 4 Terebratula.    | 10 Leda.            |
| 5 Venus, small.   | 11 Echinite spines. |
| 6 Cardium, small. |                     |

## F.—CHALK AND CHALK MARLS.

## I.—COBDEN, WESTLAND.

Forms the high hills cut through by the gorge at the mouth of the Grey River. The Marlstone is very hard, and contains Flint concretions.

- |                                  |                          |
|----------------------------------|--------------------------|
| 1 Echino-brissus spatangaformus. | 8 Galerites.             |
| 2 Echino-brissus cordatus        | 9 Brissus brevipetalata. |
| 3 Brissus Greyi.                 | 10 Waldheimia.           |
| 4 Brissus, sp.                   | 11 Terebratula.          |
| 5 Micraster, two sp.             | 12 Pecten.               |
| 6 Holaster, two sp.              | 13 Inoceramus.           |
| 7 Spatangus.                     | 5.5 x 5.0.               |
|                                  | 14 Echinite spines.      |

## AMURI BLUFF, MARLBOROUGH.

Chalk and Marl, overlying Sandstone with Reptilian bones, and streaks of Coal.

- |                   |   |
|-------------------|---|
| 1 Fusus.          | 10 Inoceramus.                              |
| 2 Natica.         | 11 Trigonina.                               |
| 3 Aporhais.       | 12 Terebratula.                             |
| 4 Vermetus.       | 13 Terebratula.                             |
| 5 Neritopsis.     | 14 Aucella <del>plicata.</del> <i>Zitt.</i> |
| 6 Rotella ornata. | <del>VIII.</del>                            |
| 7 Pleuronectes.   | 15 Halobia <del>Lomella.</del>              |
| 8 Lima.           | <del>Kiesm. VI.</del>                       |
| 9 Waldheimia.     | 16 Onocardium.                              |



- 17 Belemnites.
- 18 Cucullæa.
- 19 Isocardia.
- 20 Venus meridionalis.
- 21 Mactra.
- 22 Leda.
- 23 Cardium.

- 24 Lutraria.
- 25 Cidarid, spines.
- 26 Echinus, spines.
- 27 Encrinite stems.
- 28 Crustacean claw.
- 29 Sharks' teeth.

### G.—FERRUGINOUS SANDSTONES, OR WAIPARA BEDS.

#### I.—WANGAREI and KAWA KAWA, AUCKLAND.

Green Sandstones, overlying the Coal.

- |                 |                              |
|-----------------|------------------------------|
| 1 Turritella.   | 7 Leda.                      |
| 2 Exogyra.      | 8 Cucullæa.                  |
| 3 Lima.         | 2.5 x 3.3, slightly oblique. |
| 4 Pleuronectes. | 9 Cucullæa.                  |
| 5 Anatina.      | 10 Echinite fragments.       |
| 6 Thracia.      |                              |

#### II.—BOBY'S CREEK, WAIPARA, CANTERBURY.

Sandy Beds at the base of Marl series, containing concretionary masses.

- |                                    |   |
|------------------------------------|---|
| 1 Fusus.                           | 9 Pectunculus.                            |
| 2 <del>Aporrhais</del> Conchithyra | 10 Pectunculus.                           |
| parasitica. McCoy. ?)              | 11 Mactra.                                |
| 3 Calyptræa.                       | 12 Mesodesma.                             |
| 4 Ostrea, like O. ingens,          | 13 Crassatella.                           |
| (nacrous, black.)                  | 14 Arca.                                  |
| 5 Ostrea.                          | 15 Arca.                                  |
| 6 Venericardia.                    | 16 Terebratella.                          |
| 7 Panopæa.                         | 17 Radiolites. (?)                        |
| 8 Trigonina.                       | 18 <i>Aporrhais</i> or <i>Northiana</i> ? |

#### III.—CULVERDEN, CANTERBURY.

Compact Reddish-yellow Limestone, forming a low range of hills.

- |                       |          |
|-----------------------|----------|
| 1 Pecten Hutchinsoni. | 2 Pinna. |
| Hec.                  | 3 Lima.  |

- |                  |                   |
|------------------|-------------------|
| 4 Balanus.       | 5 Waldheimia.     |
| 5 Waldheimia.    | 8 Terebratula.    |
| 3.0 x 2.0, thin. | 9 Rhyconella.     |
| 6 Waldheimia.    | 10 Brissus Greyi. |

### ~~VII~~—MOHIKINUI, NELSON.

Ferruginous Clays, underlying 1600 feet of Chalk, Marl and Limestone, in mountains 2000 feet above sea.

- |               |                   |
|---------------|-------------------|
| 1 Turritella. | 4 Cardium, small. |
| 2 Natica.     | 5 Venus.          |
| 3 Inoceramus. |                   |

### IV.—BRUNNER MINE, NELSON.

Compact Ferruginous Sandstone, containing Mica, and overlying the great Coal seam.

- |            |               |
|------------|---------------|
| 1 Cardium. | 3 Schizaster. |
| 2 Tellina. |               |

### ~~V~~—SHAG POINT, OTAGO.

Clays, with Ironstone concretions, overlying the Coal seams.

- |            |               |
|------------|---------------|
| 1 Cardium. | 3 Inoceramus. |
| 2 Cyprina. |               |

### H.—GREEN SANDSTONES.

(PUTATAKA SERIES OF HUTTON.)

#### I.—KAWHIA, AUCKLAND.

Green Sandstones and Clay Marl, on south side of the harbour. Contain Coal seams.

- |  |  |
|--|--|
| 1 Belemnites Aucklandi-<br>cus. <i>Hauer</i> . VIII. | 3 Inoceramus <i>Haastii</i> .<br><i>Hoch</i> . VIII. |
| 2 Aucella plicata. <i>Hoch</i> .<br>VIII.            | 4 Placunopsis striatula.<br><i>Hoch</i> . VIII.      |

#### II.—PORT WAIKATO, AUCKLAND.

Sandstones, Grits, and Clays, with impure Coal seams.

- |  |               |
|--|---------------|
| 1 Belemnites Aucklandi-<br>cus. <i>Hauer</i> . VIII. | 2 Inoceramus. |
|--|---------------|

## III.—TAUTUKU, OTAGO.

Compact Green Sandstone, exposed on the coast as high cliffs.

- |              |  |                |
|--------------|--|----------------|
| 1 Ammonites. |  | 2 Astarte. (?) |
|--------------|--|----------------|

## I.—OTAPIRI SERIES.

## I.—MIDDLE SERIES, of OTAPIRI CREEK.

Green Sandstones and Red Slate Marls, forming a great part of the Hokinui Mountains.

- |               |  |                    |
|---------------|--|--------------------|
| 1 Arca.       |  | 5 Pholodomya.      |
| 2 Inoceramus. |  | 6 Cardium.         |
| 3 Mytilus.    |  | 7 Terebratula, &c. |
| 4 Spirigera.  |  | 8 Spirifer.        |

## II.—MORLEY CREEK, SOUTHLAND.

Sandstones and Dark Slates, with Ironstone bands.

- |               |  |               |
|---------------|--|---------------|
| 1 Trigonina.  |  | 3 Pholodomya. |
| 2 Inoceramus. |  | &c.           |

## K.—WAIROA SERIES.

## I.—ANISEED VALLEY, NELSON.

Sandstones and Shales, on the flanking hills of the Dun Mountain Range.

- |                            |  |                    |
|----------------------------|--|--------------------|
| 1 Monotis salinaria. Zitt. |  | 3 Halobia Lommeli. |
| VI.                        |  | Wissm. VI.         |
| 2 Spirigera Wreyi. Suess.  |  |                    |
| VII.                       |  |                    |

## II.—RICHMOND HILL, NELSON.

- |                            |  |                    |
|----------------------------|--|--------------------|
| 1 Monotis salinaria. Zitt. |  | 3 Halobia Lommeli. |
| VI.                        |  | Wissm. VI.         |
| 2 Spirigera Wreyi. Suess.  |  |                    |
| VII.                       |  |                    |

## III.—WAIROA VALLEY, NELSON.

- |                          |  |                          |
|--------------------------|--|--------------------------|
| 1 Mytilus problematicus. |  | 4 Inoceramus tumidus.    |
| Zitt. VII.               |  | Hec.                     |
| 2 Inoceramus, sp.        |  | 5 Aucella plicata. Zitt. |
| 3 Inoceramus Haastii.    |  | VIII.                    |
| Hoch. VIII.              |  |                          |

## L.—MAITAI SERIES.

## DUN MOUNTAIN RAILWAY CUTTING, NELSON.

Slates exposed at an altitude of 1800 feet.

1 *Inoceramus*, &c.

## M.—KAIHIKU SERIES.

## I.—WYNDHAM RIVER, OTAGO.

Indurated Nodular Shales and Sandstones. Fossils are chiefly found in the outer layer of the nodules.

1 <i>Cardium</i> .		3 <i>Monotis</i> .
2 <i>Nucula</i> .		

## II.—KAIHIKU GORGE, OTAGO.

Nodular Sandstones forming the Kaihiku Range. Fossils obtained from rocks in the floor of the valley, chiefly in softer parts.

1 <i>Terebratula</i> .		5 <i>Orthis</i> .
2 <i>Halobia</i> .		6 <i>Spirigera</i> .
3 <i>Pholadomya</i> .		7 <i>Spirifer</i> .
4 <i>Rhynconella</i> .		8 <i>Astarte</i> .

## III.—NUGGETS, OTAGO.

Sandstones and Sub-crystalline Blue Limestone, exposed in the sea cliffs between the Nuggets and Catlin River.

1 <i>Orthis</i> . (?)		5 <i>Spirifer</i> .
2 <i>Inoceramus</i> .		6 <i>Rhynconella</i> .
3 <i>Terebratula</i> .		7 <i>Ammonites</i> .
4 <i>Spirigera</i> .		

## N.—MOUNT ARTHUR SERIES.

## BATTEN RIVER, NELSON.

Blue Calcareous Slates, with bands of Serpentine and Marble.

1 <i>Spirifer</i> .		4 <i>Rhynconella</i> .
2 <i>Orthis</i> .		&c.
3 <i>Trilobites</i> .		

## SPECIAL COLLECTIONS OF NEW ZEALAND FOSSILS.

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### CETACEA.

- 1 (——) Vertebræ and Ribs, in White Limestone.  
Tokomairiro, Otago.
- 2 *Phocænopsis*—Paddle Bones, in White Limestone.  
Oamaru, Otago.
- 3 (——) Vertebræ and Paddle Bones, in concretion from Clay. Motanau, Canterbury.
- 4 (——) Vertebræ, Paddle and Rib Bones, from  
Concretionary Clay. Palliser Bay, Wellington.
- 5 Sub-fossil Bones of Seals, found in Maori ovens.

### AVES.

- I.—*Palæudyptes*. A Fossil Penguin discovered in the Oamaru Limestone, by W. B. D. Mantell, F.G.S., and described by Professor Huxley. (*Quart. Journal Geol. Socy.*)
- a. Radius and Ulna from same locality, in Limestone.
  - b. Humerus, Radius, Ulna, Femur, and other Bones, in Calcareous Sandstone. Brighton, Nelson.  
(For formation, see C.—VI., p. 182.)
- II.—The Moa and other extinct Birds, the Bones of which are found in modern alluvial deposits, shingle plains, and swamps.
- 1 *Dinornis giganteus*. Highly Hill, Otago. Skeleton almost complete.
  - 2 *D. didiformis*. Glenmark, Canterbury.
  - 3 *D. casuarinus*. Glenmark, Canterbury. Imperfect skeleton.
  - 4 *D. casuarinus minor*. Leg, Feet, and Pelvic Bones.

- 5 *D. elephantopus*. Leg Bones.
- 6 *D. robustus*. Leg Bones.
- 7 *Aptornis Mantelli*. Skull, Pelvis, and Extremities.
- 8 *Palapteryx ingens*. Skulls, Pelvic Bones, Sterni, Vertebrae, and Leg and Toe Bones.
- 9 Tracheal Rings of Moa.
- 10 Toe Bones, showing disease.
- 11 Fragments of Moa Egg-shells, from Maori ovens.
- 12 Egg of Great Moa, with Bones of Embryo Chick.
- 13 Egg and Chick of Emu, in same stage of development, for comparison.
- 14 Crop-stones of Moa.
- 15 *Dinornis robustus*. Portion of Skin and Feathers.
- 16 *Apteryx Mantelli*. Kiwi. Skeleton.

## FOR COMPARISON.

- 17 *Dromaius Casurinus*. Emu. Skeleton.
- 18 *Struthio camelus*. Ostrich. Leg and Wing Bones.
- 19 *Casurinus*. Cassowary. Leg Bones.
- 20 Eggs of Ostrich, Emu, Moa, and Kiwi.

## REPTILIA.

- I.—Clay Marls with Concretions, Bobby's Creek, Waipara River, Canterbury. (See G.—II.)
  - 1 *Plesiosaurus australis*. Vertebrae.
  - 2 *P. crassicostatus*. Slab with Trunk Ribs and Vertebrae, Cervical Dorsal Rib Bones, Cast of Jaw with Teeth, Proximal part of Femur.
  - 3 *P. Hoodii*. Cervical Vertebra.
- II.—Green Sandstones with streaks of Coal. Amuri Bluff, Marlborough.
  - 4 *Plesiosaurus*. Bones of Skull, with Teeth, Vertebrae, Ribs, &c.
  - 5 *Cetosaurus*. (?) Vertebrae.
- III.—Sandy Clays. Cheviot Hills, Canterbury.
  - 6 *Ichthyosaurus*. Paddle, Scapular Bones, and Vertebrae.

## FISHES.

- 1 Skeleton of Fish, in White Limestone. Weka Pass. (See D.)
- 2 Teeth belonging to the following genera:—*Carcharodon*, *Oxyrhina*, *Lamna*, *Hybodus*, *Otodus*; Palatal Teeth, &c.

## CRUSTACEA.

- 1 Fragments of Cray-fish, associated with *Cyclas*. Eden River, Waiau, Nelson. (See E.—VI.)
- 2 Swimming Crab, in Limestone. Brighton, Nelson. (See C.—VI.)
- 3 Claws of Crustacea, in Limestone. Oamaru, Otago. (See D.—XI.)

## FOSSIL PLANTS OF NEW ZEALAND.

- I.—Fragments of Plants, the nature of which cannot be distinguished, in Sandstones probably of Triassic age, in the neighbourhood of Wellington (Powder Magazine Point, Kaiwara Hill, and Porirua Road); also similar specimens from Popotunoa Gorge, Otago. (See K.)
- II.—Indurated Green and Grey Sandstones, with Shales and thin seams of Coal (See I.), exposed at Mataura Falls, Otago, containing a profusion of Fossil Plants, chiefly Ferns, which have been distinguished by the following provisional names:

*Polypodium* (*Pecopteris*) *Hochstetteri*.

*Pecopteris serratus*.

*Pecopteris distans*.

*Pecopteris ligulatus*.

*Tœniopteris robustus*.

*Tœniopteris obtusatus*.

*Tœniopteris linearis*.

*Tœniopteris gramineus*.

*Lomarites*.

*Sphenopteris*.

*Camptopteris*.

*Zamites*.

*Taxites*.

III.—From the same formation, where exposed in Waikawa Harbour, Otago.

Polypodium (Pecopteris) Hochstetteri.  
 Pecopteris grandis.  
 Pecopteris ligulatus.  
 Pecopteris gracilis.  
 Pecopteris distans.  
 Tœniopteris linearis.  
 Tœniopteris gramineus.  
 Lomarites,—fertile fronds.  
 Lomarites,—like Lomaria alpina.  
 Leaves of Aquatic Plant-like Potamogeton.

IV.—Same formation at Otipiri Creek, Southland.

Pecopteris.  
 Glossopteris. (?)

V.—Dicotyledonous Leaves, with Brown Coal. Morley Creek, Southland.

VI.—Sandstones with Coal Seams. Shag Point, Otago.

Dicotyledonous Leaves,  
 Auracaria.  
 Dammara, (or Kauri.)  
 Sedges.

VII.—Dicotyledonous Leaves, in Sandstones, with Brown Coal. Green Island.

VIII.—Dicotyledonous Leaves; Polypodium with Sori, Lomaria; with Brown Coal Seams. Cromwell, Otago.

IX.—Dicotyledonous and other Leaves, imbedded in Water Quartz. Landslip Hill, Otago.

X.—Polypodium (Pecopteris) Hochstetteri. Green Sandstone. Malvern Hills, Canterbury.

XI.—Dicotyledonous Leaves in Sandstone, with Brown Coal. Jebson's Mine, Malvern Hills, Canterbury.

XII.—Dammara Leaves, from the Reptilian Beds. Waipara.



XIII.—Obscure Impressions of Plants. Reptilian  
Beds, Amuri.

XIV.—Plant Impressions, Taxites, &c. Wakapuaka,  
Nelson.

XV.—Sandstones, with Coal Seams. Pakawau, Nel-  
son, with

Dicotyledonous Leaves, of several kinds.

Taxites.

Palms.

Polypodium (Pecopteris) Hochstetteri.

Tæniopteris.

Cyperaceous Plants.

XVI.—Indurated Slaty Shales, of dark colour, occur-  
ring as vertical beds in the Mount Arthur Range,  
at the source of the Wangapeka River, Nelson.

Dicotyledonous Leaves belonging to 13 genera.

Taxites.

Asplenium.

Polypodium.

XVII.—Micaceous Sandstones, overlying the Main  
Coal, Brunner Mine, Grey River, Nelson.

Dicotyledonous Leaves.

Cyperaceous Plants.

XVIII.—Green Sandstones and Indurated Shales.  
(See H.) Waikato-South Heads.

Polypodium (Pecopteris) Hochstetteri.

Tæniopteris liniaris.

XIX.—Shales, with Brown Coal Seams. Waikato  
Basin and Drury, Auckland.

Dicotyledonous Leaves.

XX.—Tufaceous Sandstone, underlying Trachyte  
Breccia, and overlying Brown Coal.

Dicotyledonous Leaves.

Pteris australis.

XXI.—Green Sandstone, overlying Coal Seams at  
Kawa Kawa and Wangarei.

Dicotyledonous Leaves.

XXII.—Calcareous Sandstones. Kawau Island.

Dicotyledonous Leaves.

XXIII.—Shales, with Lignite. Cooper Beach, Mon-  
gonui.

Dicotyledonous Leaves and Fruits.

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## XXII. ECONOMIC BOTANY.

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The Collection of Fruits, Oils, Dye-stuffs, and other productions of the Vegetable Kingdom, consists of contributions from the Museum of Economic Botany at Kew, and selections from the valuable series of Specimens presented to the Colony on the occurrence of the New Zealand Exhibition, in 1865.

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- 1 *Aspidosperma excelsa*. Fruit. British Guiana.
- 2 *Spathodea*, sp. Fruit. S. America.
- 3 *Protea plumosa*. Flower. S. Africa.
- 4 *Erythrophlæum Guinense*. Fruit. Sierra Leone.
- 5 *Heritiara littoralis*. Fruit. Moluccas.
- 6 *Abrus precatorius*. Seeds. Jamaica.
- 7 *Canavalia gladiata*. Pods. Central Africa.
- 8 *Canavalia*, sp. Pods. Central Africa.
- 9 *Poinciana regia*. Pods. Madagascar.
- 10 *Bignonia Indica*. Pods. E. Indies.
- 11 *Bignonia echinata*. Pods. Brazil.
- 12 *Centrolobium Paraense*. Pods. S. America.
- 13 *Persea gratissima*. Fruits. W. Indies.
- 14 *Parkia Africana*. Pods. Central Africa.
- 15 *Pithecolobium*. Pods. S. America.
- 16 *Secythidaceæ*. Fruit.
- 17 *Raphia vinifera*. Spadix. Africa.
- 18 *Raphia Ruffia*. Spadix. Mauritius.
- 19 *Bombax*, sp. Fruit. Niger River.
- 20 *Cassia*, sp. Pods. Central Africa.
- 21 *Moringa platygosperma*. Pods. British Honduras.
- 22 *Ocrhoma lagopus*. Seeds and Fibre. Jamaica.

- 23 *Inga vera*. Pod. S. America.
- 24 *Entada gigalobium*. Portion of Pod.
- 25 *Attalea cohune*. Fruits. British Honduras.
- 26 *Hymenæa Courbani*. Fruits. British Guiana.
- 27 *Nardostachys jatamansi*. Roots. E. Indies.
- 28 *Magnoliaceæ*, sp. Fruits. E. Indies.
- 29 *Xanthoxylon piperitum*. Fruits. Japan.
- 30 *Strophanthus*, sp. Fruits. Central Africa.
- 31 *Elais Guineensis*. Spadix. W. Africa.
- 32 *Penicillaria spicata*. Fruit and Spikes. Central Africa.
- 33 *Plectocomia elongata*. Spadix. E. Indies.
- 34 *Vateria Indica*. Fruits. Ceylon.
- 35 *Brehmia spinosa*. Fruits. Central Africa.
- 36 *Neesia altissima*. Fruits. Penang.
- 37 *Swietenia mahogani*. Fruits. Trinidad.
- 38 *Adansonia digitata*. Fruits. Niger River.
- 39 *Borassus Æthiopicum*. Spadix, &c. Africa.
- 40 *Asclepiadææ*. Fruits. Mexico.
- 41 *Sarcocaulon Burmanni*. Plant. S. Africa. Cape  
Geranium, used for burning as candle.
- 42 *Sterculia*. Fruits. E. Indies.
- 43 *Mucuna Altissima*. Pods. New Grenada.
- 44 *Bertholletia excelsa*. Fruits. Brazil.
- 45 *Prosopis oblonga*. Pods. Central Africa.
- 46 *Gleditschia triacanthos*. Pods. N. America.
- 47 *Afzelia Africana*. Seeds, &c. R. Niger.
- 48 *Tetrapleura Thonningii*. Pods. Central Africa.
- 49 *Ceratonia siliqua*. Pods. S. Europe.
- 50 *Nepenthes phyllamphora*. Pitchers. Moluccas.
- 51 *Barringtonia speciosa*. Fruits. E. Indies.
- 52 *Lophira alata*. Wood. R. Niger.
- 53 *Liriodendron tulipiferum*. Wood. N. America.
- 54 *Biya ebenus*. Wood. Jamaica.
- 55 *Lagetta tintearia*. Wood and Bark. Jamaica.
- 56 *Copernicia cuifera*. Wood. S. America.
- 57 *Liquidambar formosana*. Wood. Formosa.
- 58 *Cosciniun fenestratum*. Wood. Ceylon.
- 59 *Vitis*, sp. Wood. E. Indies.
- 60 *Daphne tinifolia*. Wood and Bark. Jamaica.

- 61 *Tilia Americana*. Wood. N. America.
- 62 *Quercus Ægilops*. (Valonia.) Acorns.
- 63 *Quercus*, sp. Acorns. E. Indies.
- 64 *Quercus*, sp. Acorns. E. Indies.
- 65 *Quercus*, sp. Acorns. E. Indies.
- 66 *Quercus*, sp. Acorns. E. Indies.
- 67 *Quercus heterophylla*. Acorns. Cincinnati.
- 68 *Quercus ferruginea*. Acorns. N. America.
- 69 *Quercus*, sp. Acorns. Penang.
- 70 *Quercus spicata*. Acorns. E. Indies.
- 71 *Quercus Harlandii*. Acorns. Hong Kong.
- 72 *Quercus cornea*. Acorns. China.
- 73 *Quercus Ægilops*. (Camata.) Acorns (young).
- 74 *Quercus lamellosa*. Acorns. E. Indies.
- 75 *Quercus macrocarpa*. Acorns. N. America.
- 76 *Garcinia morella*. Gamboge Seeds. Siam.
- 77 *Hyphæne Thebaica*. Fruits. Egypt.
- 78 *Sapindus emarginatus*. Fruits. E. Indies.
- 79 *Carapa Guineensis*. Seeds, &c. Sierra Leone.  
Crab Oil Seeds.
- 80 *Nephelium Litchi*. Fruits. China.
- 81 *Sapindus saponaria*. Seeds. Bombay. Soap  
Berries.
- 82 *Mauritia flexuosa*. Fruits. British Guiana.
- 83 *Aleurites triloba*. Seeds. Jamaica.
- 84 *Astrocaryum*, sp. Fruits. S. America.
- 85 *Cæsalpinia coriaria*. Pods. S. America. Divi-divi.
- 86 *Nephelium longanum*. Fruits. China.
- 87 *Iatropa curcas*. Seeds. W. Indies.
- 88 *Aleurites mollucana*. Seeds. Ceylon.
- 89 *Xanthoxylon senegalense*. Fruits. R. Niger.
- 90 *Terminalia chebula*. Fruits. E. Indies.
- 91 *Bassia latifolia*. Seeds. Ceylon.
- 92 *Calodendron Capensi*. Fruits. S. Africa.
- 93 *Myristica sebifera*. Seeds. S. America.
- 94 *Balanophora elongata*. Portion of Plants. Java.  
Used in place of candles.
- 95 *Retinospora obtusa*. Cones. Japan.
- 96 *Liquidambar formosana*. Fruits. Formosa.
- 97 *Abies Mertensiana*. Cones. N. America.

- 98 *Abies Menziesii*. Cones. N. America.
- 99 *Fagus sylvatica*. Seeds. Europe.
- 100 *Araucaria Bidwillii*. Seeds. Queensland.
- 101 *Pinus longifolia*. Cones. E. Indies.
- 102 *Langsdorffia hypogæa*. Portions of Plants.  
Venezuela.
- 103 *Leucadendron argenteum*. Fruits. S. Africa.
- 104 *Alnus*, sp. Cones. Japan.
- 105 *Calamus*, sp. Fruits. E. Indies.
- 106 *Pinus contorta*. Cones. N. America.
- 107 *Cedrus Libani*. Cones. Grown at Kew.
- 108 *Carya glabra*. Fruits. N. America.
- 109 *Pinus radiata*. Cones. California.
- 110 *Pinus excelsa*. Cones. Bhotan.
- 111 *Araucaria imbricata*. Seeds. Chili.
- 112 *Leucospermum conocarpum*. Cones. S. Africa.
- 113 *Pinus Khasiana*. Cones. Khasia.
- 114 *Pinus pineaster*. Cones. Grown in N. Z.
- 115 *Corypha umbraculifera*. Seeds. E. Indies.
- 116 *Argania Sidleoxylon*. Fruits. Mogadore.
- 117 *Nigella sativa*. Seeds. Egypt.
- 118 *Pimenta vulgaris*. Fruits. W. Indies.
- 119 *Elais Melanococca*. Fruits. Guatemala.
- 120 *Arachis hypogæa*. Pods. Africa.
- 121 *Soja hispida*. Seeds. Siam.
- 122 *Semecarpus anacardium*. Fruit. E. Indies.
- 123 *Strychnos nux-vomica*. Seeds. Siam.
- 124 *Elettaria cardomomum*. Fruits. Malabar.
- 125 *Phaseolus Mungo*. Seeds. E. Indies.
- 126 *Coriandrum sativum*. Fruits. Ionian Islands.
- 127 *Detarium senegalensis*. Fruits. Africa.
- 128 *Rhamnus infectorius*. Fruits. S. Europe.
- 129 *Brucea antidyosenteria*. Fruits. Abyssinia.
- 130 *Sesamum orientale*. Seeds. Egypt.
- 131 *Ricinus communis*. Seeds. Egypt.
- 132 *Musa Eusete*. Seeds. Abyssinia.
- 133 *Kadsura japonica*. Fruits. N. China. Used as  
medicine by the Chinese.
- 134 *Amomum melagueta*. Fruits and Seeds. Sierra  
Leone. Grains of Paradise.

- 135 *Ricinis communis*. Fruits. Ionian Islands.
- 136 *Linum usitatissimum*. Seeds. Ionian Islands.
- 137 *Coix lachryma*. Seeds. E. Indies. Job's tears.
- 138 *Caryota urens*. Fruits. E. Indies.
- 139 *Areca catechu*. Seeds. E. Indies.
- 140 *Polyporus igniarius*. German Tinder. In different stages of manufacture.
- 141 *Garcinia morella*. Gum Resin. Siam. Gamboge.
- 142 *Anacardium occidentale*. Gum. Dominica. Gum of Casheu.
- 143 *Moronobea coccinea*. Hog Gum. Jamaica.
- 144 *Garcinia morella*. Gamboge Bark. Ceylon.
- 145 *Styrax Benzoin*. Resin. Siam.
- 146 *Retinospira pisifera*. Cones. Japan.
- 147 Potatoes prepared by a French process.
- 148 *Crocus sativus*. Saffron. Egypt.
- 149 *Arenaria eupifraga*. Tuft of Plant. Thibet.
- 150 *Dipterocarpus turbinatus*. Resin. Ceylon.
- 151 *Ficus*, sp. Stick Lac. Siam.
- 152 *Eriodendron aufractuosum*. Resin. Ceylon.
- 153 *Vateria Indica*. Gum. Ceylon.
- 154 *Roccella tinctoria*. Orchella weed.
- 155 *Xylopiæ Æthiopica*. Fruits. Central Africa.
- 156 *Althæa officinalis*. Marsh Mallow Roots, peeled.
- 157 *Bixa oullana*. Fruits. British Honduras.
- 158 *Elettaria major*. Cardomoms. Fruit. Ceylon.
- 159 *Acroscopia sclerocarpa*. Fruits. S. America.
- 160 *Thapsia Garganica*. Fruits. Cyrene.
- 161 *Chavica Roxburghii*. Long Pepper. E. Indies.
- 162 *Akebia quinata*. Sliced stem. N. China. Used as medicine by the Chinese.
- 163 *Cavella alba*. Bark. W. Indies.
- 164 *Sorghium vulgare*. Fruit and Spikes. Central Africa.
- 165 *Dryobalanops camphora*. Oil. Labuan.
- 166 *Acer*, sp. Maple Sugar. N. America.
- 167 *Cassia*, sp. Pods. Central Africa.
- 168 *Melaleuca leucadendron*. Bark. Victoria.
- 169 *Lecythis*, sp. Fruits. Brazil.
- 170 *Nipa fruticosa*. Spadix. E. Indies.

- 171 *Roseda luteola*. Plants. Europe.
- 172 *Eucalyptus mannifera*. Manna. Victoria.
- 173 *Pyrus japonica*. Fruit. Grown in New Zealand.
- 174 *Sargassum bacciferum*. Gulf weed. Atlantic Ocean.
- 175 *Phormium tenax*. Paper made in Melbourne.

#### FIJI VEGETABLE PRODUCTS.

- 176 *Tantaliga ni-kau*. Edible Fungus. Fiji.
- 177 *Entada*, sp. Seeds. Fiji.
- 178 *Reed*, sp. Seeds. Fiji.
- 179 *Abrus*, sp. Seeds. Fiji.
- 180 *Arare*, (Native name.) Seeds. Fiji.
- 181 *Nai selesese*, (Native name.) Seeds. Fiji.
- 182 *Convolvulaceæ*, sp. Seeds. Fiji.
- 183 *Mamy Apple*. Seeds. Fiji.
- 184 *Arrowroot Plant*. Seeds. Fiji.
- 185 *Croton Oil Plant*. Seeds. Fiji.
- 186 *Sandal wood*. Fiji.
- 187 *Edible Roots*. Fiji.
- 188 *Fossil Gum*. Fiji.

#### VEGETABLE PRODUCTS OF BRITISH INDIA, &c.

##### VEGETABLE OILS.

- 189 *Melanorrhæa usitata*. Thet-tsee. Burpah.
- 190 *Sesame orientale*. Gingelly Oil. Sattara.
- 191 *Carthamus tinctorius*. Safflower Oil.
- 192 *Papaver somniferum*. Poppy seed Oil. Crushed in London.
- 193 *Linum usitatissimum*. Linseed Oil. Crushed in London.
- 194 *Sinapis*, sp. Mustard seed Oil. Calcutta.
- 195 *Sesame orientale*. Gingelly Oil. Crushed in London.
- 196 *Sinapis glauca*. Surson Oil. Calcutta.
- 197 *Arachis hypogæa*. Ground nut Oil. Madras.
- 198 *Jatropha curcas*. Physic nut Oil.
- 199 *Cocos nucifera*. Cocoa nut Oil. Calcutta.



- 200 *Ricinus communis* major. Lamp Oil. Madras.
- 201 *Garcinia pictoria*. Gamboge Fat. Canara.
- 202 *Arachis hypogæa*. Ground nut Oil.
- 203 *Dipterocarpus*, sp. Wood Oil. India.
- 204 *Bassia longifolia*. Mowha Oil.
- 205 *Azadirachta indica*. Margosa Oil. Madras.
- 206 *Jatropha curcas*. Bherinda Oil. Calcutta.
- 207 *Vateria Indica*. Piney Tallow. Canara.
- 208 *Pongamia glabra*. Korung Oil. Chota Nagpore.
- 209 *Cucumis utilisissimus*. Cucumber seed Oil. Calcutta.
- 210 *Calophyllum inophyllum*. Poonga Oil. Saharanpore.

## CHEMICAL SUBSTANCES AND PRODUCTS. OIL SEEDS, ETC.

- 211 *Areca catechu*. Areca Nuts. Travancore.
- 212 *Areca catechu*. Betel Nuts. Travancore.
- 213 *Murdannia scapiflora*. Black Mooslie. Madras.
- 214 *Iris florentina*. Orris root. Madras.
- 215 *Chavica Roxburghii*. Long Pepper root. Madras.
- 216 *Croton tiglium*. Croton seed. Moulmein.
- 217 *Barringtonia acutangula*. Sumunder. Bengal.
- 218 *Pyrethrum Indicum*. Pellitory. Bombay.
- 219 *Ipomœa turpethum*. Turbith. Madras.
- 220 *Cassia*, sp. Senna leaves. Bombay.
- 221 *Lavendula stœchas*. Lavender. Punjaub.
- 222 *Nardostachys jatamansi*. Spikenard. Punjaub.
- 223 *Strychnos potatorum*. Clearing Nut. India.
- 224 *Datura metel*. Dhatoora seeds. Bengal.
- 225 *Pedaliium murex*. Burragokhroo. Madras.
- 226 *Physalis flexuosa*. Asgund. Madras.
- 227 Scented Powder, used by Mahommedan bride and bridegroom. Madras.
- 228 *Curcuma longa*. Turmeric root. Bengal.
- 229 *Curcuma*, sp. Wild Turmeric. Travancore.
- 230 Concretion from joints of Bamboo.
- 231 *Embelia ribes*. Varveelungum. Madras.
- 232 *Acorus calamus*. Sweet-Flag. Madras.
- 233 *Alpinia galanga*. Galangal. Madras.
- 234 *Wrightia antidysenterica*. Indayan. W. India.

- 235 *Calophyllum inophyllum*. Alexandrian Laurel  
Nuts. Cuttack.
- 236 *Cannabis sativa*. Bhang. Madras.
- 237 *Nuclea Gambir*. White Gambier. Singapore.  
For masticating with Betel.
- 238 *Illicium anisum*. Star Anise. Bombay
- 239 *Papaver somniferum*. Poppy trash. Benares.  
Used for packing Opium.
- 240 *Anacardium occidentale*. Cashew Nuts. Madras.
- 241 *Areca catechu*. Betel Nuts. Mysore.
- 242 *Semicarpus anacardium*. Marking Nuts. Madras.
- 243 *Cyperus*, sp. Mootha. Madras.
- 244 *Moringa pterygosperma*. Ben seeds. Madras.
- 245 *Sesamum orientale*. Sesame seed. Lucknow.
- 246 *Terminalia chebula*. Myrabolanus.
- 247 *Acacia catechu*. Catechu. Mirzapore.
- 248 *Roccella fuciformis*. Orchella weed. Travancore.
- 249 *Acacia catechu*. Cutch. Patna.
- 250 *Calotropis gigantea*, (Gutta of). Gorruckpore.
- 251 *Dicalyx tinctoria*. Dye Powder.
- 252 *Trapa bispinosa*. Hooly Powder. Calcutta.
- 253 *Rottlera tinctoria*. Kamala. Madras.
- 254 *Terminalia chebula*. Balhurrah. Raepore.
- 255 *Tamarix furas*. Chootee-mue galls. Bombay.
- 256 *Phyllanthus emblica*. Aomla. Bombay.
- 257 *Terminalia bellerica*. Bedda Nuts. Bombay.
- 258 *Carthamus tinctorius*. Safflower seed. Bengal.
- 259 *Arachis hypogæa*. Ground Nuts. Bombay.
- 260 *Vernonia anthelmintica*. Kalizeerie. Bengal.
- 261 *Sesamum orientale*. White Sesame. Bengal.
- 262 *Sesamum orientale*. Gingelly seed. Madras.
- 263 *Ricinus communis*. Castor Oil seed.
- 264 *Balsamodendron myrrha*. Myrrh. Aden.
- 265 *Pterocarpus dalbergioides*. Vangay Kino. Cochin.
- 266 *Butea frondosa*. Butea Kino. India.
- 267 *Calotropis gigantea*, (Gutta of). Gorruckpore.
- 268 *Croton tiglium*. Croton seed. Madras.
- 269 *Cochlospermum gossypium*. Kuteera. India.
- 270 *Shorea robusta*. Saul Dammæ.
- 271 *Sterculia urens*, (Gum of). Madras.

- 272 *Morinda citrifolia*. Al root. Burmah.
- 273 *Nyctanthes arbor-tristis*. Hursinghar. Madras.
- 274 *Morinda tinctoria*. Ach. Patna.
- 275 *Butea superba*. Palas Kino. Cochin.
- 276 *Butea frondosa*. Tulas Kino. Cochin.
- 277 *Jatropha*, sp. Vegetable Green Dye. Malda.
- 278 *Cochlospermum gossypium*. False Tragacanth.
- 279 *Indigofera tinctoria*. Indigo. North Arcot.
- 280 *Rubia tinctoria*. Madder roots. Bombay.
- 281 *Balsamodendron Roxburghii*. Googul. Bengal.
- 282 *Areca catechu*, (Natural exudation from).
- 283 *Datisca cannabina*. Ukulbeer. Lahore.
- 284 *Punica granatum*. Pomegranite rind. India.
- 285 *Terminalia chebula*. Myrabolanes. Bengal.
- 286 *Eugenia jambolana*. Jamoon Bark. Madras.
- 287 *Nyctanthes arbor-tristis*. Hursinghar. Calcutta.
- 288 *Morinda citrifolia*. Al-root. Allahabad.
- 289 *Crocus Cashmerianus*. Saffron. Cashmere.
- 290 Dye tree Bark. Kabine. Akyab.
- 291 *Cesalpinia sappan*. Sappan wood chips. Ganjam.
- 292 *Ventilaga maderaspatana*. Pupli chuckay. Madras.
- 293 *Carthamus tinctoria*. Safflower. Calcutta.
- 294 *Cathartocarpus fistula*. Saracondra-puttay. Palancottah.
- 295 *Elettaria cardamomum*. Cardamoms. Travancore.
- 296 *Mentha sativa*. Powdered Mint. Bombay.
- 297 *Ptychotis ajowan*. Ajowan. Calcutta.
- 298 *Adiantum lunulatum*. Hunsraj. Bengal.
- 299 *Chavica officinalis*. Long Pepper. Java.
- 300 *Pimpinella anisum*. Aniseed. Calcutta.
- 301 *Aristolochia bracteata*. Birthwort. Madras.
- 302 *Ipomea turpethum*. Indian Jalap.
- 303 *Rottlera tinctoria*. Kamala. Madras.
- 304 *Ipomea cœrula*. Kala dana. Calcutta.
- 305 *Rheum Emodi*. Rhubarb. Mid Himalayas.
- 306 *Myrica sapida*. Myrica Bark. Upper India.
- 307 *Strychnos nux-vomica*. India.
- 308 *Plumbago Zeylanica*. Leadwort. Patna.
- 309 *Piper cubeba*. Cubebs. Bombay.
- 310 *Onosma bracteata*. Gaozuban. Bombay.

- 311 *Anamirta cocculus*. *Cocculus Indicus*. Madras.
- 312 *Mesua ferrea*, (Flowers of). Madras.
- 313 *Pogostemon patchouli*. Patchouly. Penang.
- 314 *Aquilaria agallocha*. Kayu Garoo. Malacca.
- 315 *Saxifraga ligulata*. Pukhan bed. Kangra.
- 316 *Plantago ispaghula*. Ispaghool. Madras.
- 317 *Phyllanthus emblica*. Aomla. Moulmein.
- 318 *Murdannia scapiflora*. White Mooslie. Bombay.
- 319 *Asarum Europæum*. Asarum. Punjab.
- 320 *Coptis teeta*. Atishmee teeta. Luckimpore.
- 321 *Tribulus terrestris*. Gokhroo. Madras.
- 322 *Trigonella fœnum Græcum*. Fenugrec. Madras.
- 323 *Viola*, sp. Violet flowers. Bombay.
- 324 *Acacia concinna*. Soap Pods. Moulmein.
- 325 *Cucumis pseudo-colocynthus*. Colocynth.  
N. W. India.
- 326 *Glycyrrhiza glabra*. Liquorice root. Bombay.
- 327 *Aucklandia costus*. Costus. Madras.
- 328 *Aconitum heterophyllum*. Atees. Bombay.
- 329 *Jungle margo* Bark. Madras.
- 330 *Trapa bispinosa*. Singhara. Bombay.
- 331 *Azadirachta Indica*. Madras.
- 332 *Helicteres isora*. Antomoor. India.
- 333 *Guilandina bonduc*. Bonduc Nuts. Madras.
- 334 *Cassia elongata*. Senna. Tinnevely.
- 335 *Aconitum ferox*. Bish. Himalayas.
- 336 *Nelumbium speciosum*. Water Lily seeds. Madras.
- 337 *Linum catharticum*. Purgine Flax. India.
- 338 *Semicarpus anacardium*. Marking Nuts. Madras.
- 339 *Rubia cordifolia*. Munjeet. Calcutta.
- 340 *Kaya kudrang*. Yellow Dye wood. Malacca.
- 341 *Rhus*, sp. Sumach Bark. Singapore.
- 342 *Cesalpina sappan*. Bukkum. Bengal.
- 343 *Rizophora*, sp. Tengah Bark. Singapore.
- 344 *Acacia Arabica*. Babool Bark. Bengal.
- 345 *Cinnamomum Zeylanicum*. Cinnamon. Singapore.
- 346 *Cinnamomum cassia*. Cassia lignea.
- 347 *Oldenlandia umbellata*. Chay root. India.
- 348 *Eleusine stricta*. Raggee. Madras.
- 349 *Eleusine coracana*. Raggee. Canara.
- 350 *Oryza sativa*. Paddy Rice. Madras.

## PULSES, BEANS, ETC.

- 351 *Panicum miliare*. Chamay. Madras.
- 352 *Cicer arietinum*. Chick Pea. Lucknow.
- 353 *Panicum miliaceum*. Millet. Madras.
- 354 *Soja hispida*. Bhoot, or Soy Bean.
- 355 *Dolichos sinensis*. Chowlee. Madras.
- 356 *Phaseolus mungo*. Black Gram, or Ooruth Dall.
- 357 *Phaseolus radiatus*. Green Gram. Madras.
- 358 *Dolichos catiang*. Burbutti. Madras.
- 359 *Cajanus Indicus*. Pigeon Pea. Madras.
- 360 *Setaria Italica*. Italian Millet. Madras.
- 361 *Lablab vulgaris*. Whal.
- 362 *Ervum lens*. Lentils. Bengal.
- 363 *Bambusa arundinacea*. Bamboo grain. Madras.
- 364 *Paspalum scrobiculatum*. Koda Millet. Madras.
- 365 *Dolichos uniflorus*. Horse Gram. (Caroopoo  
coloo.) Madras.
- 366 *Dolichos catiang*. Barbutti. Pegu.
- 367 *Pisum arvense*. Field Pea.

## MISCELLANEOUS.

- 368 Kauri Gum. Specimens representing Recent,  
Sub-fossil, and Fossil Gum. New Zealand.
- 369 Fossil Gum. Fiji.
- 370 Pua, Bread baked from the Pollen dust of the Raupo  
plant, *Typha angustifolia*, by the Hau-haus  
under Te Kooti. New Zealand.
- 371 *Haastia pulvinaris*. Vegetable Sheep. New  
Zealand.
- 372 *Raoulia eximia*. Vegetable Sheep. New Zealand.
- 373 *Raoulia mammilaris*. Vegetable Sheep. New  
Zealand.
- 374 *Mauritia*, sp. Seed. Floated by the sea to New  
Zealand.
- 375 *Entada*, sp. Seed. Floated by the sea to New  
Zealand.

## WOODS.

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Sixty-three Specimens, illustrating the results of a series of experiments on the strength of New Zealand and other Colonial Woods, conducted at Dunedin, for the Commissioners of the New Zealand Exhibition, by James Melville Balfour, C.E. (See *Jurors' Report*, page 459.)

### REFERENCE TO LETTERS ON SPECIMENS.

- A.—Weight of a cubic foot.
- B.—Greatest deflection in inches, elasticity remaining uninjured.
- C.—Greatest weight carried with unimpaired elasticity.
- D.—Deflection in inches at instant of fracture.
- E.—Length of a beam 12 inches deep and 6 inches broad, supported at both ends, which will just break with its own weight.
- F.—Breaking weight at centre of a beam 20 feet clear span (supported at ends), reduced to a uniform weight of 20 lbs. per lineal foot, and having the proportion of depth equal twice breadth.

The following abstract shows the comparative value of the different Woods in this Collection.

1*	Black Maire.	Hawke's Bay.	314·2†
2	Titoki.	Wellington.	248·0.
3	Black Mapau.	Dunedin.	243·0.
4	Manuka.	Wellington.	263·5.
5	Manuka.	Dunedin.	240·0.
6	Kowhai.	Wellington.	271·7.
7	Kowhai.	Dunedin.	189·0.

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\* These numbers correspond with those in Appendix C, *Jurors' Report*, pages 474 to 491.

† Relative strength, in lbs.

- 8 Kohwai. Wakatipu, Otago. 184·5.
- 9 Kowhai. Wakatipu, Otago. 183·5.
- 10 Tawa. Wellington. 224·0.
- 11 Towai. Black Birch. Wakatipu, Otago. 232·0.
- 12 Towai. Black Birch. Wellington. 199·8.
- 13 Miro. Wellington. 194·3.
- 14 Rata. Iron Wood. Wellington. 217·0.
- 15 Rata. Iron Wood. Stewart's Island. 202·0.
- 16 Mapau. Otago. 210·5.
- 17 Matai. Black Pine. Wakatipu, Otago. 237·5.
- 18 Matai. Black Pine. Wellington. 192·7.
- 19 Matai. Black Pine. Wakatipu, Otago. 187·5.
- 20 Matai. Black Pine. Dunedin. 153·2.
- 21 Maire. Wellington. 212·0.
- 22 Maire. Hawke's Bay. 149·0.
- 23 White Mapau. Otago. 177·6.
- 24 Kauri (Mottled). Auckland. 182·7.
- 25 Kauri (Common). Auckland. 179·6.
- 26 Kauri (Waved). Auckland. 47·8.
- 27 Rewarewa. Wellington. 153·0.
- 28 Towai. Red Birch. Wakatipu, Otago. 158·2.
- 29 Rimu. Red Pine. Wellington. 168·0.
- 30 Ruino. Red Pine. Hawke's Bay. 163·0.
- 31 Rimu. Red Pine. Dunedin. 108·0.
- 32 Rimu. Red Pine. Canterbury. 66·0.
- 33 Totara. Hawke's Bay. 148·0.
- 34 Totara. Wellington. 140·0.
- 36 Moko. Dunedin. 122·0.
- 37 Kawaka. Wellington. 120·0.
- 38 Kahikatea. White Pine. Wellington. 136·0.
- 39 White Pine. Canterbury. 90·8.
- 40 Whau. Cork Wood. Auckland. 32·0.
- 41 Iron Bark. New South Wales. 328·3.
- 42 Colonial Mahogany. New South Wales. 303·7.
- 43 Black Butt. New South Wales. 283·0.
- 44 Forest Oak. New South Wales. 293·0.
- 45 Blue Gum. New South Wales. 275·0.
- 46 Blue Gum. New South Wales.
- 47 Spotted Gum. New South Wales. 214·0.
- 48 Stringy Bark. New South Wales. 212·2.

- 49 Mountain Pine. New South Wales. 192·5.  
 50 Cedar. New South Wales. 150·5.  
 51 Blue Gum. Tasmania. 269·0.  
 52 Blue Gum. Tasmania. 239·0.  
 53 Blue Gum (Curled). Tasmania. 95·8.  
 54 Iron Wood. Tasmania. 260·0.  
 55 Prickly Box. Tasmania. 237·5.  
 56 Black Wood. Tasmania. 247·5.  
 57 Black Wood (Figured). Tasmania. 221·0.  
 58 Stringy Bark. Tasmania. 205·5.  
 59 Pink Wood. Tasmania. 195·0.  
 60 Native Box. Tasmania. 189·0.  
 61 Myrtle. Tasmania. 181·0.  
 62 Native Laurel. Tasmania. 140·0.  
 63 Huon Pine. Tasmania. 137·4.  
 64 to 149 Eighty-six Specimens of polished blocks of  
     the above Woods. Slabs of the following Tim-  
     ber trees:  
 150 *Podocarpus totara*. Totara.  
 151 *Dammara australis*. Kauri.  
 152 *Leptospermum ericoides*. Manuka.  
 153 *Podocarpus spicata*. Matai.  
 154 *Sophora grandiflora*. Kowai.  
 155 *Knightia excelsa*. Rewarewa.  
 156 to 165 Ten Specimens of New Zealand Woods  
     which have been exposed to weather for 18 years.

## CANADIAN WOODS.

- 166 *Acer saccharinum*. Hard Maple.  
 167 *Quercus rubra*. Red, or Black Oak.  
 168 *Juglans nigra*. Black Walnut, wavy veneer.  
 169 *Juglans nigra*. Black Walnut, motley veneer.  
 170 *Juglans nigra*. Black Walnut, plain veneer.  
 171 *Juglans nigra*. Black Walnut, crotched veneer.  
 172 *Betula excelsa*. Curly Birch.  
 173 *Fraxinus Americana*. White Ash.  
 174 *Acer striatum*. Soft Curly Maple.  
 175 *Larix Americana*. Tamerac.  
 176 *Cerasus Pennsylvanica*. Red Wild Cherry.  
 177 *Thuja occidentalis*. White Cedar.



- 178 *Abies Canadensis*. Hemlock.
- 179 *Quercus spicata*. Bird's Eye Oak.
- 180 *Populus balsamifera*. Balsam Poplar, or Balm  
of Gilead.
- 181 *Fagus ferruginea*. Red Beech.
- 182 *Pinus resinosa*. Red Pine.
- 183 *Salix nigra*. Black Willow.
- 184 *Cerasus serotina*. Black Wild Cherry.
- 185 *Carya alba*. Rough bark Hicory.
- 186 *Carya tormentosa*. Smooth bark Hicory.
- 187 *Quercus alba*. White Oak.
- 188 *Quercus alba*. White Oak, veneer.
- 189 *Betula lenta vel nigra*. Black Birch.
- 190 *Betula papyracea*. White Birch.
- 191 *Fraxinus sambucifolia*. Black, or Swamp Ash.
- 192 *Juglans cinerea*. Butter-nut.
- 193 *Castanea vesca vel Americana*. Chesnut.
- 194 *Fraxinus juglandifolia*. Rim Ash.
- 195 *Juniperus Virginiana*. Red Cedar.
- 196 *Abies balsamea*. Balsam Fir.
- 197 *Pinus mitis*. Yellow Pine.
- 198 *Abies nigra*. Black Spruce.
- 199 *Pinus strobus*. White Pine.
- 200 *Ulmus dura*. Rock Elm.
- 201 *Tilia Americana*. Brass Wood.
- 202 *Platanus occidentalis*. Button Wood, or Sycamore.
- 203 *Ulmus racemosa*. Soft Elm.
- 204 *Ulmus fulva vel rubra*. Red or Slippery Elm.
- 205 *Acer spicatum*. Bird's Eye Maple.
- 206 *Liriodendron tulipifera*. White Wood.
- 207 *Acer dasycarpum*. Soft Maple.
- 208 *Ulmus Americana*. Grey or White Elm.
- 209 *Populus tremuloides*. Common Aspen Poplar.
- 210 *Ostrya Virginica*. Iron Wood.
- 211 *Acacia excelsa*. *Benth.* Leguminosæ. Rosewood.  
Queensland.
- 212 *Eremophila Mitchelli*. *Benth.* Myoporaceæ.  
Sandal Wood. Queensland.
- 213 *Atherosperma moschata*. Sassafras bark. Tasmania.
- 214 *Casuarina quadrivalvis*. The Oak. Tasmania.

## FIBRES.

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### I.—Fibres suited for Spinning and Manufacturing Purposes.

- 1 *Linum usitatissimum*. Flax. From acclimatized Riga seed. Sealcote, Punjab.
- 2 *Linum usitatissimum*. Flax. Punjab.
- 3 *Linum usitatissimum*. Flax. From acclimatized seed. Lucknow.
- 4 *Bœhmeria nivea*. Rhea. Gowhatty.
- 5 *Bœhmeria nivea*. Rhea. Nowgong, Assam.
- 6 *Bœhmeria nivea*. Rhea. Debrooghur, Assam.
- 7 *Bœhmeria nivea*. Rhea. Debrooghur, Assam.
- 8 *Bœhmeria nivea*. Rhea, softened.
- 9 *Bœhmeria nivea*. Rhea, bleached.
- 10 Wild Rhea. Assam.
- 11 *Bœhmeria puya*. Puya. North-west India.
- 12 *Urtica heterophylla*. Nilgiri Nettle. From old wood, valued at £60 per ton.
- 13 *Urtica heterophylla*. Nilgiri Nettle. From new wood, valued at £65 per ton.
- 14 *Calotropis gigantea*. Mudar or Yercum. Madras.
- 15 *Paederia fœtida*. Bedolee Sutta. Upper Assam.

### II.—Fibres suited for Spinning and Manufacturing Purposes, but of inferior durability to the preceding.

- 16 *Corchorus olitorius*. Jute. Valued at £24 per ton. Darjeeling.
- 17 *Corchorus olitorius*. Jute. Hooghly.
- 18 *Sida rhomboidea*. Sufet Bariala.
- 19 *Hibiscus cannabinus*. Ambaree.
- 20 *Hibiscus sabdariffa*. Roselle.
- 21 *Abutilon Indicum*. Indian Mallow. Rohilecund.
- 22 *Urena lobata*. Bun-okra. Burmah.

### III.—Fibres chiefly suited for the Manufacture of Cordage, Twine, &c.

- 23 *Cannabis sativa*. Himalayan Hemp. Kangra.
- 24 *Crotalaria juncea*. Sunn Hemp.
- 25 *Crotalaria juncea*. Sunn Hemp. Hooghley.
- 26 *Crotalaria juncea*. Sunn Hemp.
- 27 *Crotalaria juncea*. Sunn Hemp.
- 28 *Crotalaria tenuifolia*. Jubbulpore Hemp.
- 29 *Crotalaria tenuifolia*. Jubbulpore Hemp. Chota Nagpore.

### IV.—Fibres for miscellaneous purposes, adapted for Twine, Cordage, and Paper, occasionally capable of Manufacture into Fabrics suited for Women's Dresses, Imitation Horse-hair Cloth, &c.

- 30 *Ananassa sativa*. Pine Apple. Valued at £30 per ton. Madras.
- 31 *Sansevieria Zeylanica*. Moorva. Valued at £36 per ton. Madras.
- 32 *Agave Americana*. Agave. Meerut.
- 33 *Agave Americana*. Agave. Madras.
- 34 *Yucca gloriosa*. Adani's Needle. Madras.
- 35 *Musa paradisiaca*. Plantain. Madras.
- 36 *Musa textilis*. Manilla Hemp. Madras.
- 37 *Pandanus odoratissimus*. Screw-pine. Valued at £4 per ton. Madras.

### V.—Fibres suited for the Manufacture of Mats, Brushes, Coarse Cordage, Imitation Horse-hair for Stuffing purposes, &c.

- 38 *Cocos nucifera*. Coir. Madras.
- 39 *Arenga saccharifera*. Gomuti. Singapore.
- 40 *Saccharum munja*. Moonj. Lahore.
- 41 *Borassus flabelliformis*. Palmyra. Madras.
- 42 *Eriophorum cannabinum*. Bunkuss.

### MANUFACTURES FROM FIBRES.

- 43 Canvass. Barnagore works, Borneo Company, Calcutta.
- 44 Canvass, made of Country Hemp. Meerut Jail.

- 45 American Gunny Cloth. Barnagore works, Borneo Company, Calcutta.
- 46 Rope, made of wild Rhea fibre, *Boehmeria nivea* (?).
- 47 Cord, made of Agave fibre, *Agave Americana*.  
Chota Nagpore.
- 48 Cord, made of Plantain fibre, *Musa paradisiaca*.  
Madras.
- 49 Cord and Twine, made of Sunn Hemp, *Crotolaria juncea*.
- 50 Rope, made of Ambaree fibre, *Hibiscus cannabinus*.
- 51 Rope, made of Pine-apple fibre, *Ananassa sativa*.

#### FIBRES FROM KEW MUSEUM.

- 52 *Musa sapientum*. Mauritius.
- 53 *Kydia calycina*. Jamaica.
- 54 *Helicteres pulchella*. Mauritius.
- 55 *Crotalaria juncea*. Jubbley, or Hemp. E. Indies.
- 56 *Matvaviscus arborea*. Jamaica.
- 57 *Pariteum elatum*. Jamaica.
- 58 *Fourcroya tuberosa*. Mauritius.
- 59 *Agave angustifolia*. Mauritius.
- 60 *Abutilon Bedfordiana*. Mauritius.
- 61 *Lecythus idatimon*. Guatecare tree fibre. Trinidad.
- 62 *Agave Americana*. Alves.
- 63 *Fourcroya tuberosa*. Mauritius.
- 64 *Musa textilis*. Manilla.
- 65 *Fourcroya gigantea*. Mauritius.
- 66 *Hibiscus sardariffa*.
- 67 *Sida floribunda*. Mauritius.
- 68 *Agave angustifolia*. Mauritius.
- 69 *Albelmosus exculantus*. Jamaica.
- 70 "Buaze" fibre. *Lophostyles*. Central Africa.
- 71 *Trunufeta semetribola*.
- 72 *Dracæna*, sp.
- 73 *Melaneuca leucadendron*. Victoria.
- 74 Wild Pieseda luteola. Europe.
- 75 Cocoa-nut fibre Net. Fiji Islands.
- 76 Kava bant. Fiji Islands.
- 77 Ureka hair. United States of America.
- 78 Pulo. Honolulu.

79 to 114 Thirty-five specimens of New Zealand Flax, *Phormium tenax*, showing the manner in which the fibre is prepared at the various mills; including Native dressed specimens, and also Fabrics manufactured from the fibre.

Cottons from India, America, and South Sea Islands.

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## XXIII. ANIMAL PRODUCTIONS.

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Silks, Wools, Hair, &c., and Manufactured Fabrics,  
from the East Indian Museum.

Collection of Samples illustrating the results of  
Experiments in the Cross-breeding of Sheep.  
By A. Ludlam, Esq., Hutt, Wellington :

- 1 Imported pure bred Romney Marsh ram, full mouth. Fleece, 14 lbs., unwashed ; Staple,  $7\frac{1}{2}$  inches ; 1s.  $10\frac{1}{2}$ d. per pound.
- 2 Imported pure bred Romney Marsh ram, full mouth. Fleece, 12 lbs., unwashed ; Staple, 7 inches ; 1s.  $10\frac{1}{2}$ d. per pound. November, 1864.
- 3 Imported pure bred Romney Marsh ram, 4 tooth (2 years and 3 months). Fleece, 10 lbs., unwashed ; Staple, 7 inches. November, 1864.
- 4 Imported pure bred Romney Marsh ram, 4 tooth (2 years and 3 months). Fleece,  $8\frac{1}{2}$  lbs., unwashed ; Staple, 6 inches. November, 1864.
- 5 Pure Romney Marsh ram, produce of imported Romney Marsh ewe, full mouth. Fleece, 13 lbs., unwashed ; Staple, 8 inches ; 1s.  $10\frac{1}{2}$ d. per pound. November, 1863.
- 5A Pure bred Romney Marsh ram, produce of ram No. 1, out of an imported Romney Marsh ewe, 4 tooth (2 years and 3 months). Fleece,  $13\frac{1}{2}$  lbs., unwashed ; Staple, 7 inches ; 1s.  $10\frac{1}{2}$ d. per pound. November, 1864.
- 6 Pure bred Romney Marsh ram, by imported ram No. 1, out of an imported Romney Marsh ewe, 2 tooth (1 year and 3 months). Fleece,  $11\frac{1}{2}$  lbs., unwashed ; Staple, 7 inches ; 1s.  $10\frac{1}{2}$ d. per pound. November, 1864.

- 7 Pure bred Romney Marsh ram, by imported ram No. 1, out of an imported Romney Marsh ewe, 2 tooth (1 year and 3 months). Fleece, 11 lbs., unwashed; Staple, 8 inches; 1s. 10½d. per pound. November, 1864.
- 8 Pure bred Romney Marsh ram lamb, produce of imported ram No. 2, out of an imported Romney Marsh ewe, 14 months. Fleece, 10 lbs., unwashed; Staple, 6½ inches; 1s. 10½d. per pound. November, 1864.
- 9 Pure bred Romney Marsh ram lamb, produce of imported ram No. 2, out of an imported Romney Marsh ewe, 12 months. Fleece, 6 lbs., unwashed; Staple, 5 inches; 1s. 10½d. per pound. November, 1864.
- 9A Pure bred Romney Marsh ram, produce of imported ram No. 2, out of an imported Romney Marsh ewe, 2 tooth (16 months). Fleece, 11½ lbs., unwashed; Staple, 9 inches. December 28, 1865.
- 9B Pure bred Romney Marsh ram, imported, 6 tooth. Fleece, 15¼ lbs., unwashed; Staple, 7 inches. December 28, 1865.
- 9C Pure bred imported Romney Marsh ram. Fleece, 13½ lbs., unwashed; Staple, 8 inches. December 28, 1865.
- 9D Pure bred imported Leicester ram, full mouth. Fleece, 8 lbs., unwashed; Staple, 6½ inches (at 2 tooth his fleece weighed 16 lbs, unwashed). December 4, 1865.
- 9E Pure bred Romney Marsh ram, by pure ram No. 2, out of an imported pure bred Marsh ewe, 2 tooth. Fleece, 11½ lbs., unwashed; Staple, 7 inches. December 28, 1865.
- 9F Third Cross. Ram between pure bred Marsh ram No. 2 and a 2nd cross Marsh and Merino ewe, 2 tooth. Fleece, 11½ lbs., unwashed; Staple, 8 inches. December 4, 1865.
- 10 Pure bred Romney Marsh ewe, produce of ram No. 1, out of an imported Romney Marsh ewe,

- 4 tooth (2 years and 3 months). Fleece,  $8\frac{1}{2}$  lbs., unwashed ; Staple, 7 inches ; 1s. 11d. per pound. November, 1864.
- 11 Pure bred Romney Marsh ewe, produce of ram No. 5, out of an imported Romney Marsh ewe, 6 tooth (3 years and 3 months). Fleece, 8 lbs., unwashed ; Staple, 7 inches ; 1s.  $10\frac{1}{2}$ d. per pound. November, 1864.
- 12 Pure Romney Marsh ewe, produce of ram No. 5, out of an imported Romney Marsh ewe, 6 tooth (3 years and 3 months). Fleece, 8 lbs., unwashed ; Staple, 6 inches ; 1s.  $10\frac{1}{2}$ d. per pound. November, 1864.
- 13 Pure bred Romney Marsh ewe, produce of ram No. 1, out of an imported Romney Marsh ewe, 4 tooth (2 years and 3 months). Fleece, 8 lbs., unwashed ; Staple,  $6\frac{1}{2}$  inches ; 1s.  $10\frac{1}{2}$ d. per pound. November, 1864.
- 14 Pure bred Romney Marsh ewe hogget, produce of ram No. 1, out of an imported Romney Marsh ewe, 2 tooth (1 year and 3 months). Fleece,  $8\frac{1}{2}$  lbs., unwashed ; Staple, 7 inches ; 1s. 11d. per pound. November, 1864.
- 15 Pure bred Romney Marsh ewe hogget, produce of ram No. 1, out of an imported Romney Marsh ewe, 14 months. Fleece, 9 lbs., unwashed ; Staple, 6 inches ; 1s. 11d. per pound. November, 1864.
- 16 First Cross. Ewe, between a pure bred Romney Marsh ram and a Merino ewe, full mouth (5 years). Fleece,  $6\frac{1}{2}$  lbs., unwashed ; Staple, 5 inches ; 1s.  $10\frac{1}{2}$ d. per pound. November, 1864.
- 17 First Cross. Ewe, between a pure Romney Marsh ram and a Merino ewe, full mouth (5 years). Fleece,  $5\frac{1}{2}$  lbs., unwashed ; Staple, 5 inches ; 1s.  $10\frac{1}{2}$ d. per pound. November, 1864.
- 18 First Cross. Ewe, between a pure bred Romney Marsh ram and a Merino ewe, full mouth (5 years). Fleece,  $5\frac{1}{2}$  lbs., unwashed ; Staple, 5 inches ; 1s.  $10\frac{1}{2}$ d. per pound. November, 1864.



- 19 First Cross. Ewe, between a pure bred Romney Marsh ram and a Merino ewe, full mouth (5 years). Fleece, 6 lbs., unwashed; Staple,  $4\frac{1}{2}$  inches; 1s.  $10\frac{1}{2}$ d. per pound. November, 1864.
- 20 Second Cross. Ewe, between a pure bred Romney Marsh ram and a ewe of the 1st cross, 6 tooth (3 years and 3 months). Fleece, 9 lbs., unwashed; Staple,  $6\frac{1}{2}$  inches; 1s.  $10\frac{1}{2}$ d. per pound. November, 1864.
- 21 Second Cross. Ewe, between a pure bred Romney Marsh ram and a ewe of the 1st cross, 4 tooth (2 years and 3 months). Fleece, 9 lbs., unwashed; Staple, 7 inches; 1s. 11d. per pound. November, 1864.
- 22 Second Cross. Ewe, between a pure bred Romney Marsh ram and a ewe of the 1st cross, 6 tooth (3 years and 3 months). Fleece, 9 lbs., unwashed; Staple, 6 inches; 1s.  $10\frac{1}{2}$ d. per pound. November, 1864.
- 23 Second Cross. Ewe, between a pure bred Romney Marsh ram and a ewe of the 1st cross, 4 tooth (2 years and 3 months). Fleece, 8 lbs., unwashed; Staple, 5 inches; 1s. 11d. per pound. November, 1864.
- 23A Second Cross. Ewe, between a pure bred Romney Marsh ram and a ewe of the 1st cross, full mouth. Fleece,  $6\frac{1}{2}$  lbs., unwashed; Staple, 5 inches. November, 1864.
- 23B Second Cross. Ewe, between a pure bred Romney Marsh ram and a ewe of the 1st cross, full mouth. Fleece, 7 lbs., unwashed; Staple, 6 inches. December 4, 1865.
- 23C Second Cross. Ewe, between a pure bred Romney Marsh ram and a ewe of the 1st cross, 6 tooth. Fleece, 9 lbs., unwashed; Staple, 6 inches. December 4, 1865.
- 23D Second Cross. Ewe, between a pure bred Romney Marsh ram and a ewe of the 1st cross, 6 tooth. Fleece, 8 lbs., unwashed; Staple,  $5\frac{1}{2}$  inches. December 4, 1865.

- 24 Third Cross. Ewe, between a pure bred Romney Marsh ram and a ewe of the 2nd cross, 4 tooth (2 years and 3 months). Fleece, 13 lbs. unwashed; Staple, 4 inches; 1s. 11d. per pound. November, 1864.
- 25 Third Cross. Ewe, between a pure bred Romney Marsh ram and a ewe of the 2nd cross, 4 tooth (2 years and 3 months). Fleece, 8 lbs., unwashed; Staple, 6 inches; 1s. 11d. per pound. November, 1864.
- 26 Third Cross. Ewe, between a pure bred Romney Marsh ram and a ewe of the 2nd cross, 4 tooth (2 years and 3 months). Fleece, 10 lbs., unwashed; Staple, 5 inches; 1s. 11d. per pound. November, 1864.
- 27 Third Cross. Ewe, between a pure bred Romney Marsh ram and a ewe of the 2nd cross, 4 tooth (2 years and 3 months). Fleece, 9 lbs., unwashed; Staple, 6 inches; 1s. 11d. per pound. November, 1864.
- 28 Third Cross. Ewe, between a pure bred Romney Marsh ram and a ewe of the 2nd cross, 4 tooth (2 years and 3 months). Fleece,  $7\frac{1}{2}$  lbs., unwashed; Staple, 6 inches; 1s. 11d. per pound. November, 1864.
- 29 Third Cross. Ewe hogget, between a pure bred Romney Marsh ram, No. 1, and a ewe of the 2nd cross, 2 tooth (15 months). Fleece, 8 lbs., unwashed; 1s. 11d. per pound. November, 1864.
- 30 Third Cross. Ewe hogget, between a pure bred Romney Marsh ram, No. 1, and a ewe of the 2nd cross, 2 tooth (1 year and 3 months). Fleece, 11 lbs., unwashed; Staple,  $7\frac{1}{2}$  inches; 1s. 11d. per pound. November, 1864.
- 31 Third Cross. Ewe hogget, between a pure bred Romney Marsh ram, No. 1, and a ewe of the 2nd cross, 2 tooth (1 year and 3 months). Fleece, 9 lbs., unwashed; Staple,  $5\frac{1}{2}$  inches; 1s. 11d. per pound. November, 1864.
- 32 Third Cross. Ewe hogget, between a pure bred

Romney Marsh ram, No. 1, and a ewe of the 2nd cross, 2 tooth (1 year and 3 months). Fleece,  $8\frac{1}{2}$  lbs., unwashed; Staple, 6 inches; 1s. 11d. per pound. November, 1864.

- 33 Third Cross. Ewe hogget, between a pure bred Romney Marsh ram, No. 2, and a ewe of the 2nd cross, 2 tooth (1 year and 3 months). Fleece, 10 lbs., unwashed; Staple, 7 inches; 1s. 11d. per pound. November, 1864.
- 34 Third Cross. Ewe hogget, between a pure bred Romney Marsh ram, No. 2, and a ewe of the 2nd cross, 2 tooth (1 year and 3 months). Fleece, 9 lbs., unwashed; Staple, 7 inches; 1s. 11d. per pound. November, 1864.
- 35 Third Cross. Ewe hogget, between a pure bred Romney Marsh ram, No. 2, and a ewe of the 2nd cross, 2 tooth (1 year and 3 months). Fleece,  $8\frac{1}{2}$  lbs., unwashed; Staple, 7 inches; 1s. 11d. per pound. November, 1864.
- 36 Third Cross. Wether, between a pure bred Romney Marsh ram, No. 2, and a ewe of the 2nd cross, 2 tooth (1 year and 3 months). Fleece,  $8\frac{1}{2}$  lbs., unwashed; Staple, 7 inches; 1s. 11d. per pound. November, 1864.
- 37 Third Cross. Ewe hogget, between a pure bred Romney Marsh ram, No. 5, and a ewe of the 2nd cross, 2 tooth (1 year and 3 months). Fleece, 9 lbs., unwashed; Staple, 7 inches; 1s. 11d. per pound. November, 1864.
- 38 Third Cross. Ewe hogget, between a pure bred Romney Marsh ram, No. 5, and a ewe of the 2nd cross, 2 tooth (1 year and 3 months). Fleece, 9 lbs., unwashed; Staple, 7 inches; 1s. 11d. per pound. November, 1864.
- 39 Third Cross. Ewe hogget, between a pure bred Romney Marsh ram, No. 5, and a ewe of the 2nd cross, 2 tooth (1 year and 3 months). Fleece,  $9\frac{1}{2}$  lbs., unwashed; Staple, 6 inches; 1s. 11d. per pound. November, 1864.
- 40 Third Cross. Ewe hogget, between a pure bred

Romney Marsh ram, No. 5, and a ewe of the 2nd cross, 2 tooth (1 year and 3 months). Fleece,  $7\frac{1}{2}$  lbs., unwashed; Staple, 6 inches; 1s. 11d. per pound. November, 1864.

- 41 Ewe hogget, the produce of a half bred Romney Marsh ram, out of a half bred Romney Marsh ewe, the sire and dam originally from the Merino breed, by pure imported Romney Marsh rams, over 2 tooth (about 17 months). Fleece,  $11\frac{1}{4}$  lbs., unwashed; Staple, 7 inches; 1s. 11d. per pound. January, 1864.

Particular attention is called to this and the two following samples, as showing the results of breeding from cross-bred sheep; the fleeces are heavier than usual from the fact of the animals not having been shorn until the middle of January, six weeks later than the ordinary time.

- 42 Ewe hogget, the produce of a half bred Romney Marsh ram out of a half bred Romney Marsh ewe, the sire and dam originally from the Merino breed, by pure imported Romney Marsh rams, over 2 tooth (about 17 months). Fleece, 14 lbs., unwashed; Staple, 9 inches; 1s. 11d. per pound. January, 1864.
- 43 Ewe hogget, the produce of a half bred Romney Marsh ram, out of a half bred Romney Marsh ewe, the sire and dam originally from the Merino breed, by pure imported Romney Marsh rams, over 2 tooth (about 17 months). Fleece,  $9\frac{1}{2}$  lbs., unwashed; Staple, 8 inches; 1s. 11d. per pound. January, 1864.
- 44 Fourth Cross, between Romney Marsh and Merino. Ewe hogget, the produce of an imported Romney Marsh ram and a ewe of the 3rd cross, 2 tooth. Fleece,  $8\frac{1}{2}$  lbs., unwashed; Staple, 6 inches. December 13, 1866.
- 45 Fourth Cross, between Romney Marsh and Merino. Ewe hogget, the produce of an imported Romney Marsh ram and a ewe of the 3rd cross,

2 tooth. Fleece, 9 lbs., unwashed; Staple, 8 inches. December 15, 1866.

46 Fourth Cross, between Romney Marsh and Merino. Ewe hogget, produce of an imported Romney Marsh ram and a ewe of the 3rd cross, 2 tooth. Fleece, 9 lbs., unwashed; Staple, 8 inches. December 14, 1866.

47 Fourth Cross, between Romney Marsh and Merino. Ewe hogget, the produce of an imported Romney Marsh ram and a ewe of the 3rd cross, 2 tooth. Fleece, 9 lbs., unwashed; Staple, 7 inches. December 14, 1866.

48 Fourth Cross, between Romney Marsh and Merino. Ewe hogget, the produce of an imported Romney Marsh ram and a ewe of the 3rd cross, 2 tooth. Fleece, 10 lbs., unwashed; Staple, 9 inches. December 14, 1866.

49 Fourth Cross, between Romney Marsh and Merino. Ewe hogget, the produce of an imported Romney Marsh ram and a ewe of the 3rd cross, 2 tooth. Fleece, 8 lbs., unwashed; Staple, 7 inches. December, 1866.

50 Fourth Class, between Romney Marsh and Merino. Ram hog, produce of an imported Romney Marsh ram out of a ewe of the 3rd cross, 14 months. Fleece, 11 lbs., unwashed; Staple, 8 inches. December 20, 1866.

51 Leicester and Romney Marsh Cross. Hogget, between a pure imported Leicester ram, No. 9d, and a Romney Marsh and Merino ewe of the 3rd cross, 2 tooth. Fleece, 8 lbs., unwashed; Staple, 7 inches. November 23, 1865.

52 Leicester and Romney Marsh Cross. Hogget, between a pure bred Leicester ram, No. 9d, and a Romney Marsh and Merino ewe of the 3rd cross, 2 tooth. Fleece, 7 lbs., unwashed; Staple, 6 inches. November 23, 1865.

53 Leicester and Romney Marsh Cross. Hogget, between a pure bred imported Leicester ram, No. 9d, and a Romney Marsh and Merino ewe

- of the 3rd cross, 2 tooth. Fleece, 8 lbs., unwashed; Staple, 8 inches. November 23, 1865.
- 54 Leicester and Romney Marsh Cross. Hogget, between a pure bred imported Leicester ram, No. 9D, and a Romney Marsh and Merino ewe of the 3rd cross, 2 tooth. Fleece,  $7\frac{1}{2}$  lbs., unwashed; Staple,  $6\frac{1}{2}$  inches. November 23, 1865.
- 55 Leicester and Romney Marsh Cross. Hogget, between a pure bred imported Leicester ram, No. 9D, and a Romney Marsh and Merino ewe of the 3rd cross, 2 tooth. Fleece, 7 lbs., unwashed; Staple, 7 inches. November 23, 1865.
- 56 Leicester and Romney Marsh Cross. Hogget, between a pure bred imported Leicester ram, No. 9D, and a Romney Marsh and Merino ewe of the 3rd cross, 2 tooth. Fleece, 8 lbs., unwashed; Staple, 7 inches. November 23, 1865.
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#### XXIV. BOTANICAL COLLECTIONS.

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- 1 Herbarium of New Zealand Plants, arranged according to the "Handbook of the New Zealand Flora," by Dr. Hooker, C.B., F.R.S. 1866.
- 2 Herbarium of British and other Plants.
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## XXV. ETHNOLOGICAL.

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- 1 Skulls of Aborigines of New Zealand and the Chatham Islands.
- 2 Weapons, Implements, Ornaments, and Articles of Dress, made by the Natives of New Zealand, the Pacific Islands, and Australia. (For detailed Catalogue, see Supplement.)
- 3 Maori House, originally built at Turanga, Poverty Bay, by the Ngatikaipoho tribe, who were always noted, throughout New Zealand, for the excellence of their carving. It was designed by a Native named Paharuhi Pukapo, and eighteen different Natives were employed in carving the figures.

This wonderful specimen of Native Art has been restored in such a manner, that, while it is carefully preserved from decay by an exterior covering of wood and iron, its interior presents as much as possible the original character which its designers intended.

The only marked innovation has been the elevation of the carved walls on a plinth  $2\frac{1}{2}$  feet above the original level, so that the eye of the visitor, when standing up, may be at the same elevation as if he were sitting on the floor of the house in its original state, according to the usual Native custom. For the purpose of lighting the interior, the reeding which originally filled the spaces between the pillars at one end of the house, has also been removed, and replaced by stained glass.

The total interior length of this house is 43 feet 8 inches, and width 18 feet. The original height of the walls was 4 feet 6 inches, and the apex of the roof 12 feet above the floor, but now 7 feet, and 14 feet

6 inches, respectively. The side walls contain thirty-two figures, elaborately carved in solid Totara wood (*Podocarpus totara*), 4 feet 6 inches high, 2 feet wide, and 6 inches in thickness; the end walls of twenty pieces of carving of a different character and size, according to their position, the central carvings, 12 feet in height, supporting the ridge pole at each end, being the most elaborate in the building. The ridge pole is a huge triangular beam of wood, in two pieces, with one end projecting 6 feet beyond the building, and over what originally formed the porch. Besides the supports at each end, there were originally two posts supporting this beam in the interior of the house, and from each side-panel, a plank with a carving at its lower end reaches to the ridge. The interspaces were originally filled with the Kakaho or toetoe grass (*Arundo conspicua*), and this has been supplied by an imitation in wood of the fluted surface, as being more durable and cheaper of construction than the original material. The position and form of the original window and door have been preserved, and the entrance to the building from the Museum has been effected by swinging one of the panels in the side on hinges.

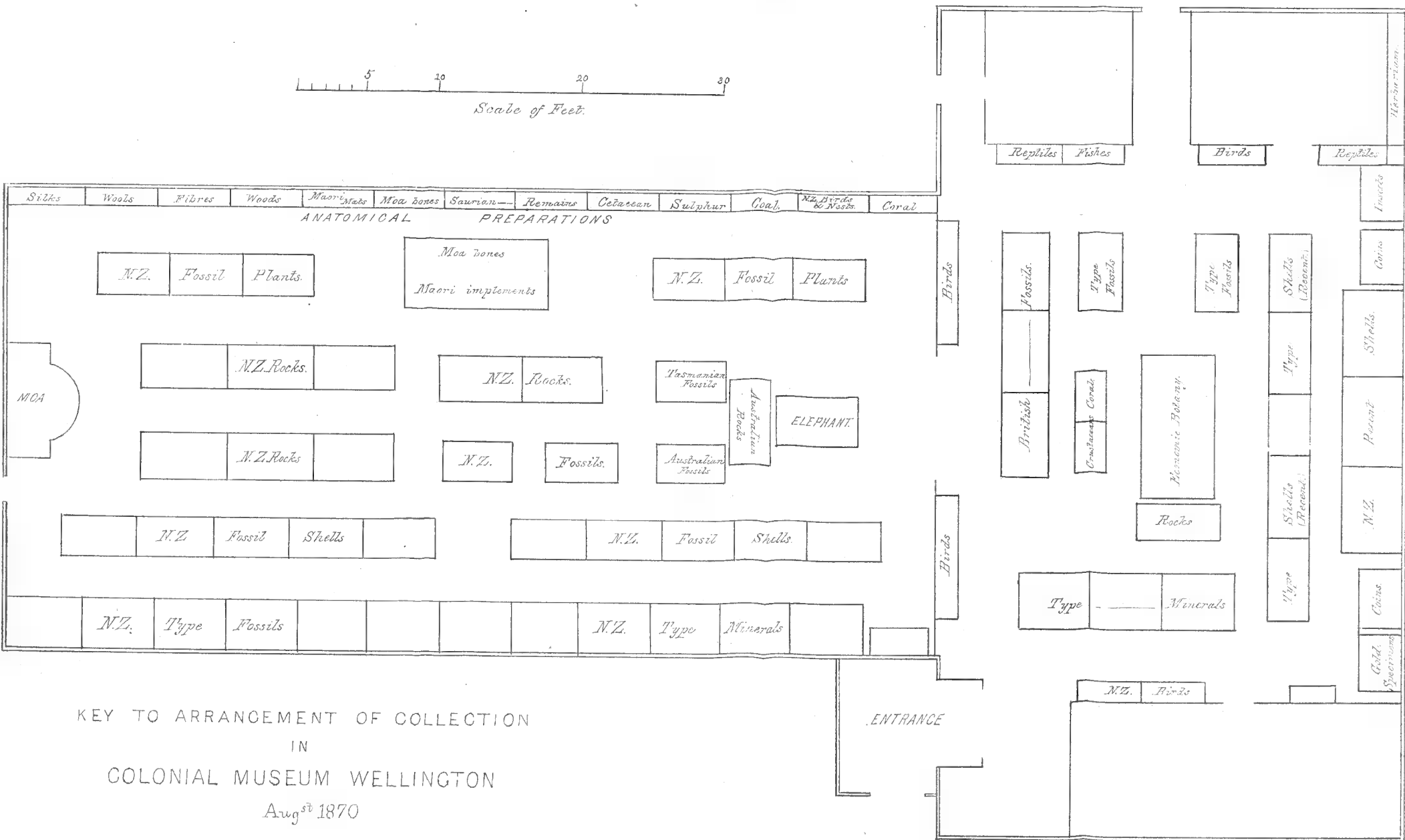
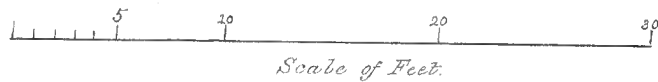
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## XXVI. MISCELLANEOUS.

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Building Materials, Photographs, Drawings, Plans, Maps, Sections, Models, &c. (See Supplement.)





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